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A
THIRD DISSERTATION
ON
FEVER.
PART I.

CONTAINING THE
HISTORY AND METHOD OF TREATMENT
OF A
REGULAR CONTINUED FEVER,
SUPPOSING IT IS LEFT TO PURSUE ITS ORDINARY COURSE.

> Medicina igitur adhuc taliter comparata eſt, ut fuerit magis oſtenta, quam elaborata: etiam magis elaborata quam amplificata.
>
> Bacon Aug. Sc. Lib. ii. Cap. i.

> Solent autem homines naturam tanquam ex præalta turri et e longo deſpicere, et circa generalia nimium occupari; quando ſi deſcendere placuerit et ad particularia accedere, reſque ipſas attentius et diligentius inſpicere, magis vera et utilis fieret comprehenſio.——Ibid.

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A

THIRD DISSERTATION, &c.

AN ephemera, or fever conſiſting of one paroxyſm only, or, in other words, of a cold fit, hot fit, and criſis, is eaſily diſtinguiſhed from any other diſeaſe; nor is it difficult to diſtinguiſh an intermitting fever, if regular, as it conſiſts of ſeveral paroxyſms, ſimilar in all their parts to the one paroxyſm of an ephemera. But a fever going on for many days without any appearance of criſis; having only one marked criſis after a continuance of two or three weeks, or perhaps going off without any marked criſis, is with difficulty diſtinguiſhed from many other diſeaſes.

This ſeems to be the principal cauſe of the confuſion found in the works of even practical authors, who have treated on this diſeaſe. Should the author alſo fail in diſcriminating it, he will have this conſolation, that he has failed with many of the firſt practitioners who have written on this ſubject.

A fever which continues for three, four, five weeks, or even longer, without any marked criſis, and afterwards goes off by degrees, one critical ſymptom happening after another, is only, in the author's opinion, a repetition of ephemeræ, where the ſubſequent paroxyſm begins before the criſis of the former has begun to take place.

It has been ſhewn, in the Treatiſe on a regular tertian, that at the beginning of the diſeaſe the ſucceeding paroxyſm often commences before the beginning of the criſis of the preceding one: were this to continue to the end of the diſeaſe, it would be a continued fever. It has alſo been noticed, that if one very perfect criſis ſhould take place, it ſometimes terminates an intermittent; but that when the diſeaſe is not ſo carried off, it gradually diminiſhes after a certain time, and ceaſes entirely.

A regular continued fever begins in the ſame manner, increaſes for a certain time, remains nearly in the ſame degree for ſome time, diminiſhes from no apparent cauſe, and leaves the patient. Or otherwiſe, a criſis takes place during ſome part of its progreſs, either carrying it off altogether, or converting it into an intermittent.

A fever is a diſeaſe of the whole ſyſtem. If a diſeaſe of a part, therefore, ſhould go off while the cauſe remains, and the ſyſtem ſhould not be generally affected in a greater or leſs degree, it ought not to be conſidered as fever.

One criterion of a regular continued fever is, that it increaſes for a certain time from its beginning, remains for ſome time in its greateſt degree, or as the Greeks call it acme, then, without any apparent cauſe, gradually diminiſhes, and terminates in health. Or otherwiſe, a criſis takes place during its progreſs, and carries off the diſeaſe; or the criſis converts it into an intermittent; or otherwiſe in its progreſs it produces topical inflammation; or kills the patient. Any diſeaſe, not having theſe qualities, is not a regular continued fever.

The author has before remarked, that when a cauſe is applied which produces fever, it produces it *uno ictu*, at a blow; and the diſeaſe continues afterwards, although the cauſe be no longer applied; neither is it increaſed, diminiſhed, or altered by the farther application of its cauſe. The author, therefore, would not admit any affection of the general ſyſtem to be a fever, which depends upon the conſtant application of the original cauſe.

Should a diſeaſe ariſe with frequency of the pulſe, and other affections of the whole ſyſtem; but if theſe general affections ſhould not be ſuch as are commonly found in fever; that is, if there ſhould not be contraction of the veſſels, depreſſion of ſtrength, affection of the ſtomach, &c. although the diſeaſe ſhould ariſe from a cauſe, the continuance of which is not neceſſary for the continuance of the diſeaſe, and the diſeaſe ſhould gradually increaſe, remain for ſome time with a certain degree of violence, then gradually diminiſh and go off, nevertheleſs it muſt not be conſidered as fever.

The following rules may be applied for diſtinguiſhing the ſeveral diſeaſes which have been called fever from that diſeaſe.

When the diſeaſe has a tendency, after having increaſed to a certain degree, gradually to diminiſh, and go off without any apparent cauſe.

This is a property of fevers, but not of fevers only. Acute rheumatiſm, when no medicine whatever is exhibited, increaſes for a certain length of time, riſes to a certain height, continues for a time in an equal degree, then gradually abates and leaves the patient. Hemicrania encreaſes for a time, then continues in the ſame ſtate, although a much longer time than acute rheumatiſm, and afterwards leaves the patient without any apparent cauſe whatever, ſeeming only (if the expreſſion may be uſed) to grow tired of a longer ſtay. Some cauſe, however, there muſt be for all ſuch increaſe and diminution, although it has not yet been diſcovered.

This criterion of fever, therefore, is unfit for univerſal application; but it may be applied in many caſes; as for diſtinguiſhing the diſeaſe called hectic fever. This diſeaſe ſometimes agrees with regular continued fever, in ariſing without apparent cauſe; but it commonly ariſes from, and is kept up by the conſtant application of an apparent cauſe. There is coldneſs, paleneſs, and other ſymptoms of depreſſion of ſtrength and contraction of the ſmall veſſels: theſe are followed by heat, frequency of the pulſe, foulneſs of the tongue, and other ſymptoms of the hot fit of fever. The attacks and ſubſequent apparent hot fits take place in the evening, terminating in the morning, often with ſeveral critical ſymptoms. Sometimes indeed the attack happens in the day-time, but not commonly. This diſeaſe has been frequently called fever, but it wants this eſſential property, that where it does not ariſe from an apparent cauſe, and often when its cauſe is removed, it has no diſpoſition to go off of itſelf, but remains until it deſtroys the patient. This want of means of curing itſelf excludes it from the claſs of fevers.

In tetanus contraction often takes place in the muſcles of various parts of the body, continuing for a certain length of time, without any apparent intermediate relaxation; the general ſyſtem is often affected, the pulſe becomes frequent to a hundred and twenty ſtrokes in a minute or more: there is, however, no other appearance of fever in the ſyſtem; the patient is often in a profuſe ſweat, the tongue is clean, and the ſtomach not much affected. This affection of the ſyſtem often ariſes without any apparent cauſe, and frequently after ſome other diſeaſe has gone off, as after the cure of a fever, or the healing of an ulcer; it increaſes to a certain degree, continues for a certain length of time, diminiſhes, and goes off.

The ſame affection of the ſyſtem ariſes not uncommonly with little or without any ſpaſmodic contraction of any of the muſcles of the body. Although this caſe has not been remarked by any writer the author is acquainted with, yet he has ſeen it ſeveral times. Firſt, where there has been ſpaſmodic contraction in particular parts of the body, the affection of the ſyſtem has been greater than in proportion to ſuch ſpaſmodic contraction. Secondly, when there has been no ſpaſm in any part, and therefore the affection of the ſyſtem ſubſiſts without any continued cauſe applied. This affection cannot be called fever, becauſe it totally diſagrees with it in its appearances.

Should a phlegmonous inflammation ariſe in any part of the body of a ſtrong young perſon, diſtending the part conſiderably, and accompanied with violent pain; as the inflammation increaſes, the pulſe becomes hard, full, ſtrong, frequent and ſynchronous; conſiderable degree of heat and of general tenſion takes place all over the body; the tongue is covered with white fur, the patient has head-ach, feeling as if his head would burſt; pains in the extremities, and great ſenſe of heat: theſe appearances gradually ſubſide, when the phlegmonous inflammation has ſuppurated, and the pus has made its exit externally; they are therefore kept up only by a conſtant apparent cauſe, and are conſequently excluded from fevers; or ſhould the inflammation be cured by any means, this affection of the ſyſtem alſo goes off in the ſame manner, ſo that the affection of the ſyſtem evidently depends on the topical affection, and therefore is not fever.

Should rheumatiſm ariſe in any part of the body, all the appearances in the ſyſtem juſt enumerated take place, and continue often as long as the rheumatic affection continues in any part, or parts of the body. But when the rheumatic affection has gone off, theſe appearances gradually ſubſide alſo, and leave the patient. Sometimes, when the rheumatiſm is not in fact cured, but has left the patient in appearance free from diſeaſe, after a ſhort pauſe a metaſtaſis takes place to the head or breaſt, and ſoon proves fatal. This remiſſion of the ſymptoms is nothing like an intermiſſion of fever, for which reaſon it is here noticed.

Similar appearances take place in the ſyſtem in the gout, and in other diſeaſes which depend entirely upon their apparent cauſe; increaſing as that cauſe increaſes, diminiſhing when it diminiſhes, and going off when it is removed.

Theſe appearances have often been called inflammatory fever, or general inflammation, but are excluded from the claſs of fevers by their dependance upon their cauſe.

Should eryſepelatous inflammation ariſe on the ſkin, it often happens, after the inflammation has taken place, that the pulſe becomes frequent to 120 ſtrokes in a minute or upwards; the ſtrength of the patient is univerſally depreſſed, there is head-ach, foulneſs of the tongue, loſs of appetite, nauſea; the ſenſe of heat is very much increaſed, as alſo the degree of heat to 100°, or 103°, or 104°; there is dryneſs of the ſkin, and obſtruction of the pulſe. Theſe ſymptoms are all very much increaſed in the evening; and there is ſome degree of relaxation of them in the morning. This diſeaſe is extremely ſimilar to fever, yet it is to be excluded from that diſeaſe by its total dependance upon its cauſe, the eryſepelatous inflammation of the ſkin; for if that be removed by application of alkohol, diluted with water, to the inflamed part only, all theſe affections of the ſyſtem generally go off.

Should an eryſepelatous inflammation ariſe in the throat, producing whitiſh ſloughs in it, ſimilar ſymptoms appear in the ſyſtem; but if the inflammation be carried off by the exhibition of large quantities of the bark of the cinchona, and the whitiſh ſloughs be made to fall off, ſo that all diſeaſe ſhall be removed from the mucous membrane of the throat, the affection of the ſyſtem generally ceaſes. This affection of the ſyſtem, therefore, cannot be ranked among fevers, according to the rule, which excludes from fevers diſeaſes depending on the conſtant application of their cauſe.

Should phlegmonous inflammation take place in any part of the duodenum, jejunum or ilium; and after the inflammation has taken place, as ſhewn by the pain, if the ſtrength be greatly depreſſed, if the pulſe ſhould become hard, frequent to 120 ſtrokes in a minute or upwards, and much contracted; if there ſhould be a thick brown fur upon the tongue, great ſenſe of heat, head-ach, paleneſs, and contraction of the ſkin, nauſea and vomiting; if there ſhould even be delirium; let the inflammation of the inteſtines be cured by copious bleeding from the arm and ſkin of the abdomen, by the application of ſedative and relaxing fomentations to the abdomen; all theſe ſymptoms in the ſyſtem generally will ſubſide and go off, and therefore cannot form a diſeaſe which ought to be included in the claſs of fevers.

In treating of the ephemera it has been obſerved, that in the middle of the hot fit a topical inflammation ſometimes ariſes and carries off the fever. Thus, for example, in an hour or two after all the appearances of a paroxyſm of fever have taken place, a pain ariſe in the ſide a little below the clavicle. The pulſe either was, before the pain in the ſide took place, or becomes afterwards, very hard, full, and ſtrong, accompanied with difficulty of breathing, increaſed pain of the ſide on inſpiration, and all the other appearances, which would have ariſen had a phlegmonous inflammation taken place in the pleura without any preceding cold or hot fit. In the latter caſe, if large evacuations be made by bleeding from the arm and ſkin of the breaſt, the inflammation of the pleura is carried off, and every morbid affection of the ſyſtem ceaſes in conſequence; but it ſometimes happens that the inflammation being carried off from the pleura, that is the pain having left the ſide, and the difficulty of breathing having ceaſed, the frequency of pulſe, heat, and all the other ſymptoms of fever remain notwithſtanding, and go through the courſe of a regular continued fever. This caſe the author finds a difficulty in diſcriminating; but he conceives that an ephemera had taken place in the firſt inſtance; that the inflammation of the pleura had cured this ephemera; that the inflammation being carried off by the evacuation, or other remedies, no fever remained in thoſe caſes where the ſymptoms entirely ceaſed on the ceſſation of the inflammation; but that when the febrile ſymptoms continued after the pleuriſy was cured, a regular continued fever had been diminiſhed by the inflammation of the pleura, but not entirely carried off; that therefore when the pleuriſy was cured, the fever went on as it would have done if no ſuch inflammation had happened.

It may be ſaid, that it were more ſimple to conſider all theſe affections of the ſyſtem as fever; but it has been always thought, that in ſcientific ſubjects nice diſtinctions ſhould be made where they actually exiſt, in order to diſcriminate the natural properties of bodies. In botany, for example, a ſuperficial obſerver would rank together all beautiful and ſweet-ſcented plants under the name of flowers; all plants whoſe ſeed gives nouriſhment to mankind, under the name of grain; all plants whoſe leaves, ſtems or roots are eatable, under the name of pot-herbs, and reckon all others weeds; while the botaniſt would carefully diſtinguiſh between the figures and qualities of plants ſimilar to each other in any one reſpect. Some conſider all noiſes the ſame; a muſician carefully diſtinguiſhes a ſemitone. Were diſeaſes ſtudied merely to inveſtigate their properties, it would ſtill be worth while to enter into accurate and minute diſtinctions; but they become of much greater moment when the object is to alleviate and remove the diſeaſe.

One object in view in laying down the above diſtinctions, is to diſcriminate between diſeaſes where it is only neceſſary to remove their cauſe to cure the patient, and thoſe where other circumſtances of the diſeaſe are of moment.

In what is called hectic fever, which continues often after its cauſe is removed, as it does not produce any means of its own cure, ſome muſt be employed to carry off the diſeaſe, without attention to its own ordinary progreſs.

If a diſeaſe depends ſolely upon its cauſe, it is ſufficient to remove that cauſe, and in general attention to the diſeaſe itſelf is unneceſſary. Should a phlegmonous inflammation produce the appearances ſimilar to thoſe of a paroxyſm of fever, medicines are to be employed that will carry off the topical inflammation without attending to the general affection of the ſyſtem, excepting that this general affection muſt ſometimes be conſidered as an accident that may in itſelf be miſchievous. Where phlegmonous inflammation cannot be cured, if it ſhould not prove fatal, from affecting ſome organ neceſſary for life, the inflammation muſt be allowed to ſuppurate, and the ſuppuration muſt even be forwarded very frequently by means increaſing the general affection of the ſyſtem, inſtead of employing medicines to diminiſh or remove it. Whereas in fever, on the other hand, the whole attention is directed to the application of remedies that will either remove the diſeaſe, or make it go through its natural courſe without danger to the patient, or with a leſs degree than it otherwiſe would, totally neglecting the cauſe which firſt produced it.

General inflammation excited by a diſeaſe affecting ſome part neceſſary for life, might however be fatal, independent of the topical inflammation which occaſioned it. In this caſe it would be neceſſary to employ means to take off the general inflammation; but they are commonly the ſame as thoſe which take off the topical inflammation, and totally different from thoſe that ſhould be employed to take off fever.

When rheumatiſm excites general inflammation, the general inflammation frequently appears to be the principal diſeaſe; and until lately practitioners have thought it ought to be carried off by large evacuations, eſpecially by bleeding. Dr. Hugh Smith, an extraordinary practitioner, conceived that the evening attacks of violent pain, frequently

happening

happening in acute rheumatiſm, were the returns of the paroxyſms of an intermittent. He therefore exhibited the bark of the cinchona, in the quantity of an ounce and an half, during the interval of the pain, although the pulſe continued hard, full, ſtrong and frequent, and thus ſucceeded in preventing the return of the pain. This practice has ſince been adopted with ſucceſs by many practitioners. Some have even employed the bark of the cinchona in acute rheumatiſm, where there was no remiſſion of pain, but in the caſes the author has ſeen, without effect. While it was the practice to remove the general inflammation by bleeding, metaſtaſis frequently took place to the interior parts of the body, and deſtroyed the patient. This accident in the author's practice during the laſt fifteen years has rarely happened. In this period he has entirely left off bleeding in acute rheumatiſm; and has not loſt above two or three patients, although he has treated ſeveral hundreds in this diſeaſe. This may be conſidered as a digreſſion; but it is intended to ſhew, that general inflammation, in this caſe, has nothing in its treatment ſimilar to fever.

If in the gout, or in other diſeaſes where general inflammation takes place, unleſs it were ſo violent as immediately to threaten the deſtruction of the patient, large evacuations by bleeding certainly ſhould not be made, nor any means be employed to carry it off, which would increaſe the original diſeaſe. In managing the gout, or other ſuch diſeaſes, in the beſt manner, remedies muſt ſometimes be employed which evidently tend to increaſe the general inflammation.

If in conſequence of an eryſepelatous inflammation of the ſkin the pulſe ſhould become frequent to 120 ſtrokes in a minute, or upwards, there ſhould be univerſal depreſſion of ſtrength, and other ſymptoms of general affection of the ſyſtem, they ought not to be attended to, but ſolely the eryſepelatous inflammation of the ſkin, as on the cure of that, the affection of the ſyſtem would ceaſe.

In eryſepelatous inflammation of the throat, producing whitiſh ſloughs in it, the general affection of the ſyſtem is not to be attended to; but the practitioner ſhould endeavour to carry off the eryſepelatous inflammation and remove the ſloughs, without attending to the frequency of pulſe, heat, or any part of the affection of the ſyſtem generally.

If from inflammation of the duodenum, jejunum or ilium, there ſhould ariſe great depreſſion of ſtrength, frequency and ſmallneſs of the pulſe, with other ſymptoms of general affection of the ſyſtem, an experienced practitioner would not employ cordials, or peruvian bark, to ſupport or increaſe the ſtrength; nor would he attend at all to the general affection of the ſyſtem, but would endeavour to cure the inflammation in the inteſtine, without paying the leaſt attention to the general affection of the ſyſtem.

If an attack ſhould take place ſimilar to the attack of an ephemera, and violent pain ſhould ariſe in the ſide, a little under the clavicle, increaſing upon inſpiration, the pulſe becoming hard, full and ſtrong, and other ſymptoms of general inflammation taking place; if by making large evacuations by bleeding from the arm and ſkin of the breaſt, by bliſters and other remedies, the pain ſhould be entirely removed from the ſide; if notwithſtanding the general affection of the ſyſtem ſhould not go off, that general affection is then undoubtedly to be attended to. If, during the exiſtence of the pleuriſy a practitioner is enabled to determine, that although the pleuriſy ſhould be carried off, the affection of the ſyſtem would ſtill remain, in this caſe the general affection is to be attended to, both during the pleuriſy and after it is carried off. Theſe diſtinctions, however important, have hardly ever been made matter of enquiry.

A regular continued fever takes place exactly in the manner of an ephemera, or a regular tertian; nor would it be poſſible, from the appearances of the diſeaſe, to determine whether it would be an ephemera ſimplex, a regular tertian, or a regular continued fever. The circumſtance of a patient's living in a country, where intermittents were endemic, from moiſture or putrefaction, ariſing in marſhy grounds, in warm climates; or of intermittents being from any cauſe epidemic in dry countries, might make a practitioner ſuſpect that the diſeaſe would be an intermittent or remitting fever. But without ſuch circumſtances, no appearance in the patient himſelf would, within two or three hours of the attack, at all enable him to determine what kind of fever it would prove.

Continued fevers ſometimes then begin at once exactly with the ſame ſymptoms as an ephemera. At times, however, there ariſes immediately upon application of the cauſe of diſeaſe, particularly if it ſhould be expoſure to cold, putrefaction, or infection, ſome derangement of the ſyſtem, but no complete paroxyſm of fever. Theſe derangements conſiſt of languor, the patient's feeling himſelf not perfectly well, and being unable to exert the powers of his body or his mind, whether for buſineſs or amuſement, ſo perfectly as when in abſolute health. Sometimes his ſleep is diſturbed; he does not go to ſleep readily; his ſleep during the night is broken, and he is not refreſhed ſo much as uſual. It happens ſometimes that theſe ſymptoms go off in a few days; ſometimes they all at once increaſe very conſiderably, and form a paroxyſm, which is the beginning of the fever.

The ſtate of ſleep has been variouſly repreſented by writers upon it, whether phyſicians or metaphyſicians. The effects of ſleep in fever, and particularly in continued fever, are ſo great, that it may be neceſſary for the author to ſtate his ideas on the ſubject.

Whence or how the powers of exertion, and the various operations, either of the body or mind, are produced, it is impoſſible to ſay: or at leaſt every thing that has hitherto been ſaid on the ſubject is viſionary.

It has already been obſerved, that the power exerted by the muſcles is not derived from any mechanical or chemical conſtruction or operation, but that it is an original power ariſing from the life of the animal. This power may be infinite, ſo that all the muſcles may be able to exert themſelves conſtantly with an infinite force; or it may be finite, and ſo that the muſcles of the body may act altogether with a certain force, and conſtantly continue that force of action; or a certain number of muſcles may exert all the force of the body, the others being at the ſame time neceſſarily at reſt.

We find by experience that the force is not infinite, and that only a certain quantity of it can be exerted in a given time. It may be exerted either in all the muſcles at once, or in a certain number of them, the remainder being at reſt: for no man can lift above a certain weight, therefore the force is not infinite. A man cannot run with velocity, and ſtrike at the ſame time an equal number of blows of equal force with a man keeping the muſcles of his lower extremities at reſt.

A man might be able, either to exert his utmoſt muſcular force conſtantly, or it might be neceſſary for him to come to reſt, after having continued to exert his utmoſt muſcular force a certain time, and to remain ſome time at reſt before he could again exert it. The latter of which is known to be the caſe; that is, when a man has exhauſted himſelf by labour, it is neceſſary that he ſhould be recruited by reſt.

The reſt from muſcular exertion is not, however, abſolute reſt; for there are ſome of the muſcular exertions of the body which muſt always be carried on, in order that a man ſhould live. It is neceſſary, for example, that the muſcles of the organs of reſpiration ſhould continue to expel vapours from the lungs, as they become unfit for the purpoſes of life, and draw in freſh vapours, otherwiſe the life would be loſt; that the heart and arteries ſhould be in conſtant action; that ſuch muſcular powers as form the tone of all the moving parts of the body ſhould be conſtantly exerted, &c. The body may be compared to a machine, moved by a ſtream of water always ſufficient to keep ſome parts of the machine in action, but not the whole. If a dam be formed, leaving an outlet for part of the water ſufficient to keep certain neceſſary parts of the machine in conſtant action, the remainder may be retained for a time, when on opening a ſluice the water treaſured up will ſet the whole machine in motion, and continue its action until the dam is emptied.

After a man has been at reſt for a certain time, it is not neceſſary that he ſhould exert the power he has re-acquired; he may if he pleaſes continue in a certain degree at reſt.

In fever, not only the body is affected, but often the mind alſo. It may, therefore, be neceſſary to make ſome inveſtigation of the powers of the mind. It is, however, by no means intended to treat of the powers of the mind, or its properties, as they relate to diſeaſes of the mind, but only in ſo far as they are connected with diſeaſes of the body, particularly with fever.

The powers of the mind are, 1ſt. perception; that is, the power of receiving impreſſions from the organs of ſenſation.

The organs of ſenſation are of a particular conſtruction, by which ſome alteration is produced in them by external objects. The eye, for example, the organ whoſe operation is in this reſpect moſt evident, has a membrane in it called the retina, upon which the image of an external object is painted, by the lenſes of the eye; ſo far the body contributes to the idea formed in the mind by an external object, and ſo far the perception is in the body. Any thing in the body which prevents an object being painted on the retina, or painted with ſufficient perfection on the retina, may be conſidered as a diſeaſe in the body preventing the perception of an external object. Suppoſing the object is perfectly painted upon the retina, yet, frequently, no impreſſion is made upon the mind, and no idea whatever is excited. This may happen without any diſeaſe of the mind, merely from its attention being withdrawn to ſomething elſe.

The tree in St. Paul's church-yard has been painted perfectly on the retina of millions of people, without exciting any idea in the mind, ſo much ſo as to be a common topic of jeſt books. This perception then muſt be conſidered as an operation of the mind entirely ſeparate from the painting of the object on the retina.

The ſecond operation of the mind is memory, the power of recalling ideas which have been formed by impreſſions made on ſome of the organs of ſenſe, and it is certainly an operation of the mind alone.

Imagination, or the power of arranging ideas in various ways, has likewiſe been conſidered as purely an operation of the mind.

Laſtly judgment, or the power of determining whether ideas are properly arranged, and according to their original perception. The judgment, for example, would revolt, on having preſented to it by the imagination a cow with an horſe's head, or St. Paul's church placed in Pekin.

All theſe exertions of the mind are exertions of a certain power, but that power ſeems at firſt ſight to be totally different from the muſcular power of the body; yet there is certainly this connection between them, that if the body has been fatigued with exerciſe, the mind cannot exert its powers of judgment, nor carry on any proceſs by which it may determine the congruity of ideas. A ſtudent in mathematics, having once acquired the knowledge ſubſervient to the demonſtration of a problem, would not be able, after having contended in an athletic game, to trace the ſteps by which the problem was demonſtrated.

On the other hand, a mathematician, after having gone through a new and laborious demonſtration, would be unable to exert the powers of his body in a fox chace.

Whether, therefore, it be the ſame power employed in the exertions of the muſcles and the mind, or different powers, yet theſe powers are ſo connected together, that the exertion of the one will prevent the poſſibility of exerting the other in ſo great a degree as it might have been had there been no immediately previous exertion of either.

The powers of the mind, like the muſcular power of the body, are not infinite. A man cannot perceive, remember, imagine, and judge of an infinite quantity of ſubjects at the ſame inſtant; he muſt indeed firſt perceive, then remember, then imagine, and then judge. Neither can the imagination arrange an infinite number of different ideas at the ſame inſtant, nor the judgment determine whether they are properly arranged, nor the memory bring up at once all the ideas it has in ſtore, nor perception produce an infinite number of ideas at once. Hence it is evident, that the powers of the mind are no more infinite than the powers of the body.

The mind having exerted any one of its faculties for a certain length of time, can no more continue the exertion of that faculty, than a muſcle, not neceſſary for the immediate purpoſes of life, can continue its motion. This beyond a certain period renders it neceſſary, after the exertion of any of the faculties of the mind, that that faculty be allowed to reſt ſome time before it is again exerted.

If the powers of the mind be exhauſted by the exertion of any one faculty, no other faculty of the mind can be exerted till after reſt.

In all theſe reſpects the force of the muſcles, and the powers of the exertion of the mind, are perfectly ſimilar to one another. There is one thing indeed which has been diſputed by metaphyſicians, whether there be any exertion of the mind abſolutely neceſſary for its exiſtence, as the reſpiration and the action of the heart are neceſſary for the exiſtence of the body. It is not our preſent purpoſe to enquire into this; all that is to be ſaid is, that we do not know, either *a priori*, or from experience, that is, from reflexion on the faculties of our own minds, that it is neceſſary that the mind ſhould perceive, remember, arrange, or judge of any ſet of ideas in order to exiſt.

Upon the whole, therefore, in order to exert the powers of the body and the mind in their full force, it is neceſſary that there ſhould be intervals of reſt. The author conceives that ſleep is this reſt, ſometimes more ſometimes leſs perfect; for in ſleep we ſhall, in the firſt place, conſider the exertions of the mind. The judgment, which is the moſt exhauſting operation of the mind, is totally at reſt. Suppoſing even that the patient ſhould dream, that is to ſay, that the memory ſhould preſent certain ideas, and the imagination arrange them, the judgment never exerts its powers at all. The mind never revolts at a cow with an horſe's head, nor the town of Pekin ſurrounding St. Paul's; nor whether St. Paul's is placed upon its baſe or turned topſy turvy, and reeling upon its croſs. Imagination is left to go on freely in a dream without correction from the judgment. This is therefore certainly a great degree of reſt of the greateſt exertion of the mind. Although

though it frequently happens in ſleep, that the memory and imagination are employed; or in other words, when a man dreams, it ſeems clear that they are at reſt in a certain degree. If a man attends to what happens to him in a dream, he feels often that he has loſt himſelf entirely, as if the memory produced no connected ſeries of ideas, but flew from one object, and apparently from one period of time, to another; he is totally loſt, and wonders that he has found himſelf again. That conſtant connexion of ideas, therefore, which takes place when a man is awake, does not exiſt in ſleep. The memory, then, and the imagination do not exert themſelves ſo much in ſleep, and ſo conſtantly, as when a man is awake. Without entering into the controverſy, whether the memory and imagination are ever totally at reſt, the powers of perception in the mind are certainly, in many caſes of ſleep, totally at reſt, without any defect in the organs or the exertions of the body. It is very true, as has been already obſerved, that the exertions of the body are often ſuch as put parts of it in thoſe ſituations in which the mind can take perceptions from it. The muſcles of the eye for perception muſt exert themſelves ſo, as to give the lenſes the proper convexity to paint objects, which are at different diſtances, correctly on the retina. Therefore, ſhould a man ſleep in day-light with his eyes open, which has happened in a great number of caſes, the mind could not receive perceptions, which are diſtinct, of objects which are at various diſtances. The lenſes of the eye would certainly paint objects at a given diſtance very perfectly; but the mind would receive no idea from ſuch painting. Therefore the mind, while a man is aſleep, is at reſt, ſo far as regards the power of perception.

Here then two exertions of the mind, in tolerably ſound ſleep, are entirely at reſt; the power of receiving ideas from impreſſions from the body, and the power of judging whether the imagination has properly arranged the ideas that may be repreſented to it. There is certainly likewiſe a diminution of the powers of the memory, in preſenting ideas to the imagination, although perhaps not equally a diminution of the powers of the imagination in arranging ſuch ideas, which, without the correction of the judgment, would arrange them, as the wind blows, as it liſteth. There are perhaps too (as has been contended by ſome metaphyſicians) caſes in which the memory preſents no ideas to the imagination, which of courſe can make no arrangement of them, ſo that the mind is perfectly at reſt. In a certain degree of ſleep, the mind perhaps neither receives any impreſſion from any external object, nor has any ideas brought up into it, of courſe no ideas can be arranged; therefore arrangement cannot be judged of, or, in common expreſſion, a man does not dream at all, according to ſome metaphyſicians. This happens, we may ſay almoſt undoubtedly, in fainting fits, fits of epilepſy, hyſteric fits, &c. where it was never known that any perſon, after coming out of them, ever remembered any dream at all. If in ſleep, therefore, the mind is not at perfect reſt, it is certainly at reſt in a very great degree.

It has been already ſaid, that the body cannot exert itſelf always, but muſt come to reſt. The next enquiry, therefore, is, how far the body is at reſt during ſleep more than it is at any time while a man is awake. The firſt thing, in which the different ſtates are to be compared, is the power of giving perceptions to the mind. The eye is that organ, in which the power of the body in giving perceptions to the mind has been moſt completely diſcovered, although perhaps not quite completely. It admits rays of light; it collects them, and applies them to the retina, through tranſparent lenſes, ſo as to paint there an image ſimilar to the body, from which thoſe rays of light were emitted. In ſleep, then, the eye-lids are generally ſhut, ſo as to prevent the rays from falling upon the retina at all; or at leaſt the eye-lids are ſo opake, as not to allow the rays to fall upon the retina, ſo as to paint any image at all; therefore the power of perception in the body is, in this caſe, ſuſpended and at reſt. The author might ſay that, from analogy, the ſame thing probably happens in all the other organs of the ſenſes, and that they alſo are at reſt; but he does not think that any truth can be deduced from analogy. It muſt depend only on future experience to determine, whether the ſenſibility, or power of impreſſing an idea on the mind by any of the other organs of ſenſation, is equally ſuſpended in ſleep as the power of the eye.

In tolerable ſleep, therefore, the action of the body, which makes the impreſſion on the mind, if not totally at reſt, is much more at reſt than when the body is awake.

When a man goes to ſleep, as he does when not prevented by any external accident, he puts himſelf in a recumbent poſture, which is not a poſture he commonly aſſumes when awake. In this poſition, in the firſt place, he is ſupported by a great many more points than when ſtanding, ſitting, or walking; therefore more points being preſſed upon, it requires leſs exertion to avoid the effects of ſuch preſſure. It is true, however, that the exertion might be equal, although it does not ſeem to the feeling

ing to be ſo. In the next place, if a man is in an erect poſture, it requires the exertion of a great number of muſcles to keep up the equilibrium neceſſary for that poſture, while no ſuch exertion is required in a recumbent poſture, every part of the body throwing itſelf in that ſituation, in which its gravity would place it. So far, therefore, the body is more at reſt when a man is aſleep than when he is awake. Moreover it is well known, that what is habitual is performed with great eaſe; whereas going out of the habit requires a very conſiderable degree of exertion. Now the fœtus in the womb is laid with its body bent, its knees brought towards the chin, and its arms folded. A man in health rather lies, therefore, in this poſture, which he has acquired by habit, than exert himſelf againſt that habit; ſo far again he is at reſt in ſleep. It is true that lying in this poſture requires ſome muſcular exertion, and ſo we ſee that thoſe who have been reduced to a great degree of weakneſs lie, even when awake, upon their back, where there is hardly any muſcular exertion at all. This, being contrary to their habit, produces a certain degree of uneaſineſs, which occaſions an attempt to ſhift their poſture, which being made by the muſcles of the back, they are conſtantly throwing themſelves towards the bottom of the bed. What has been juſt ſaid ſhews that in ſleep there is a great degree of reſt from muſcular action.

Again, the heat of the body is produced by the action of the living power. It is very true that almoſt every body, excepting Dr. Cullen, has attributed the heat of the body to ſome of the means of producing heat out of a living body: it would be a digreſſion greatly too long to enter into at preſent, to ſtate the arguments on this queſtion here. If the opinion be wrong, that it does depend upon the living power, it will affect the preſent argument but very little, it being at preſent only intended to ſtate a fact, to wit, that although the heat of the body to the thermometer be the ſame in a man ſleeping or awake, yet when a man is aſleep, he cannot communicate ſo much heat to the ſurrounding medium as when he is awake. This is evident by the experience of every man, who falls aſleep with the ordinary clothing which he wears when awake; waking again, he feels extremely cold; that is, he feels the ſubſtances that ſurround him very cold.

Although the heart continues its action when a man is aſleep as well as awake, yet during ſleep it happens very often that the pulſe, the meaſure of the action of the heart, is neither ſo frequent, ſo full, nor ſo ſtrong as when a man is awake. Moreover, the breathing does not go on ſo quickly, nor the periſtaltic motion of the inteſtines in the ſame degree, nor any of the other actions neceſſary for life. Thus, although there is not a total reſt in thoſe actions of the body, which muſt conſtantly take place in order to its exiſtence, yet the body does not exert itſelf in the ſame degree.

In ſleep, therefore, the judgment is often totally at reſt; perhaps the memory and imagination are ſometimes alſo totally at reſt; the power of perception in the mind is certainly ſometimes totally at reſt; the ſtate of the body, which gives the mind a means of perception, is alſo in ſome inſtances, perhaps in all, totally at reſt: the muſcular exertions, not neceſſary for life, are totally at reſt, excepting where habit has made it more eaſy for certain exertions to take place; and laſtly, the muſcular powers of the body, which are neceſſary for life, act with leſs vigour. Sleep, therefore, may be conſidered a ſtate of reſt, during which the powers of the ſyſtem are recruited; or, to go on with the ſimile firſt begun with, the dam is ſhut up, ſo that the waters accumulate in it, and are ready to be applied, to bring the whole of the machine into action.

The only apparent objection to this view of ſleep is, that people in madneſs, in many inſtances, never ſleep; but then the author would contend that they are never awake. Their judgment, that which is the greateſt exertion of the power of the ſyſtem, is never at all exerted in maniacs who never ſleep. The imagination may arrange the ideas that the memory preſents to it, without the judgment ever attempting to diſturb it. The power of perception in their mind is undoubtedly perfectly confuſed; a crown of ſtraw, or even a ſingle ſtraw, painted on the retina, excites the idea of a crown of gold adorned with jewels; a ſingle ſtraw the idea of a circle, and not of a line. The power of impreſſions on the body is much leſs; it requires ſeveral times the doſe of a purgative, or of any other medicine, to produce an equivalent effect. The common ſtream of power flowing into the body, if we may ſo ſpeak, may be ſufficient to keep up ſuch a degree of action, as has juſt been deſcribed, conſtantly, but not the actions which take place in a perſon whoſe faculties are ſound.

The next thing to be inquired into is the effects of ſleep.

Having ſhewn that the actions of the mind are very conſiderably at reſt in ſleep, if not ſometimes totally, and that the exertions of the powers of the body are alſo in a great degree of inaction; if a quantity of living power be conſtantly generating in the ſyſtem, it follows that in ſleep this power will be gradually accumulated, as the water would be in a dam, if a conſtant ſmall ſtream were flowing into it, and only a part of that ſtream flowing out. The dam being filled, the water flowing over would ſet ſome of the parts of the machine at work, which might raiſe the ſluices of the dam, and put the whole of the machine in motion. Thus in the ſyſtem, when a quantity of power is accumulated, part of the exertions may take place, as we ſee is the caſe in natural ſleep. A man in health, and not much fatigued, firſt falls into a reverie, and then into ſleep, which at the beginning is accompanied with dreams, afterwards becomes more profound, until ſometimes it becomes perfect, perhaps without any dream, and the perſon is with difficulty awaked and excited into action. After a time of ſuch profound ſleep, he begins again to dream; all his powers are brought into action with great facility if any ſtimulus be applied; otherwiſe they come into action, and the perſon awakes, without any ſtimulus being applied, as it were from the ſyſtem being full of power.

If the ſubject be viewed in this light, it will appear, that ſleep is ſimply that reſt, which is neceſſary to recruit the powers of the body and the mind, when they are exhauſted; and that in the common and healthy ſtate of the body, when there is the ordinary exertion, ſleep is neceſſary, after a certain interval, to reſtore the powers of the ſyſtem, ſo as to enable them to exert themſelves.

Want of ſleep, therefore, will prevent the neceſſary accumulation of the powers of the body, and conſequently induce weakneſs, or the want of ſufficient power in the ſyſtem to exert itſelf to any great degree. A continual want of ſleep, if the exertions take place, as when a man is awake, will at laſt, and does actually, ſo exhauſt the ſyſtem, as to deprive a man of all power of action whatever, ſo that he ſhall no longer exiſt.

Sometimes want of ſleep for a certain length of time produces mania, a ſtate of the ſyſtem which it is not our buſineſs here to inquire into. It may be ſufficient to bſerve, that we cannot pretend to determine *a priori* any thing with regard to what vould happen to animals. Mania is a ſtate of the ſyſtem that no man could have imagined if it had never actually taken place.

Suppoſing the ſyſtem is weakened by the want of ſleep, and that mania does not take place, we are next to take notice of what happens, when the weakneſs is not ſo great as to deſtroy the patient.

If any machine be made on mechanical principles, ſo as at once to perform many actions independent of one another, and a force be applied to put that machine in motion, ſo that it ſhall perform all its functions; if that force be diminiſhed, ſome of its functions may ceaſe entirely, and the others go on regularly. Suppoſe that we had a time-piece, in which the motion of the parts keeping time ſhould be produced or continued by any power, and that this power was more than ſufficient to produce the motions keeping time. The ſuperfluous power may be employed to occaſion anothe action, ſuch as the pumping of water, t which it is actually applied. That machin might be ſo conſtructed, that the primar power ſhall be ſufficient to keep up the motio of the time-piece and ſomething more but the power might be diminiſhed ſo a not to be more than ſufficient: in tha caſe it would ceaſe to act upon the pump ſo that the motion of the time-keepe might continue, without the motion of th pump. Or otherwiſe, a mechanical machine might be ſo contrived, as that th power originally generating motion ſhoul act equally in producing all its motions; i that caſe, if the original power was diminiſhed, all its motions would be diminiſhe equally. Neither of theſe is the caſe in th human body, when the power which actuates it is diminiſhed for want of ſleep, or by any other means. Some of its actions do not ceaſe while others go on, nor are they all equally diminiſhed; but the whole of its actions become irregular. While ſome of them diminiſh, others increaſe, indiſcriminately; that is, it is uncertain which will increaſe and which diminiſh. Want of ſleep, therefore, produces irregularity in the whole actions of the body, and great irregularity in fever. So does alſo any other cauſe diminiſhing the powers of the body, but not nearly ſo much as want of ſleep.

For example, if a man in health ſhould be prevented from ſleeping during a whole night, little more would happen, than that all the powers of the body and mind would be ſomewhat diminiſhed. He would not be able to make ſuch great exertions in walking and riding; nor would he exert the muſcular actions of the interior parts of the body in ſo great a degree. The powers of his perception, as far as depended on the body, would not be ſo complete. For example, he would not be able to adapt his eye ſo exactly to the diſtance of an object, as that it ſhould be painted perfectly on the retina; the mind would take leſs readily or perfectly the impreſſion from the object painted on the retina; the memory would be leſs ready in bringing up ideas to the imagination; the imagination would be leſs ready to arrange them, and the judgment would be much leſs exerted in determining the juſtneſs of that arrangement.

In ſo far the ſyſtem would be affected pretty nearly in the ſame manner as a mechanical machine which had loſt part of its power.

Let the ſame man be prevented from ſleeping a ſecond night, then irregularity would begin to take place through the ſyſtem. A ſtrong contraction would begin to take place in ſome of the muſcular fibres of the inteſtines; the appetite would begin to be loſt; the muſcles in the exterior parts of the body would ſome of them act more ſtrongly, others more weakly; the heart would ſometimes contract more frequently, ſometimes, although ſeldom, more ſlowly; the powers of perception, as far as depended on the body, would ſome of them be ſtronger for a ſhort time, and ſoon after in the ſame organ weaker; the ſame thing would happen in the power of perception, as far as it depended on the mind; memory would ſometimes bring up ideas very faſt, and ſometimes very ſlowly; the imagination would ſometimes arrange ideas very readily, but not very often in the order which the judgment would approve of, and the judgment in many caſes would not be exerted at all, but leave the fancy to arrange them juſt as it pleaſed; and if a man in health continued to be prevented from ſleeping, theſe derangements would go on and mania would often be produced.

On the other hand, if ſuch derangements as have been deſcribed ſhould take place from any other cauſe in a man in health, ſleep would be prevented.

In fever, as well as in many other diſeaſes, theſe diſorders in the ſyſtem prevent ſleep in a much greater degree; and want of ſleep produces them alſo in a much greater degree, only inſtead of mania delirium takes place.

While the diſorders in the ſyſtem which take place in fevers prevent ſleep, the want of ſleep in fevers weakens the whole ſyſtem, produces the diſorders which have been enumerated, and occaſions delirium.

To return from this digreſſion; when a continued fever is produced, ſometimes, when the cauſe of the diſeaſe is applied, there is not the leaſt appearance of fever, or any apparent alteration from health for many days, until all at once a complete paroxyſm of fever comes on. Sometimes, when the cauſe of fever is applied, ſome ſlight febrile appearances take place, and continue till a perfect attack of fever ariſes, which comes on at once, and its firſt paroxyſm is eaſily aſcertained; now and then they gradually diminiſh and go off, without any permanent fever ariſing. When ſuch ſlighter febrile ſymptoms take place, they do not increaſe gradually, ſo as to conſtitute a fever, but the patient goes on with his ordinary occupations; not well indeed, but not ſo as to be confined, until all at once a paroxyſm, ſuch as has been deſcribed in the diſſertation on the ephemera ſimplex, takes place, ſo that the patient can almoſt always mark the very hour in which the attack comes on. Sometimes a complete paroxyſm of fever is produced immediately on application of the cauſe.

If none of the ſymptoms of fever happen between the time of the application of the cauſe and that of the firſt paroxyſm, a ſtrong attack takes place at once, and begins often with a ſenſe of coldneſs, horror and rigour; the cold is followed by a ſenſation of heat, which is ſucceeded again by a ſenſe of coldneſs, and ſo alternately for the firſt twenty-four hours. Sometimes there is no ſenſe of coldneſs, but the patient feels from the beginning very hot. Whether there be a ſenſe of coldneſs or a ſenſe of heat, the thermometer under the tongue riſes to about one hundred, or from that to one hundred and five degrees of Fahrenheit's ſcale, excepting at the very firſt beginning of the attack. Whether there be ſenſe of cold or of heat, there is always great depreſſion of ſtrength, both in the powers of the body and the mind, which is generally according to the degree of fever, ſometimes ſo great as to render the patient unable to ſupport himſelf in an erect poſture; ſometimes not ſo conſiderable as to prevent him from doing his ordinary buſineſs, if he makes extraordinary exertions.

It has unluckily often happened, that phyſicians have been too apt to go on attending their patients for a day or two after a paroxyſm has actually taken place, and unfortunately have been by that means ſo exhauſted, as not to be able to go through the remaining part of the diſeaſe, but have been cut off.

The depreſſion of ſtrength is, in all degrees, between theſe extremes. The pulſe, during the firſt twenty-four hours, beats ſeldom leſs than ninety times in a minute, and very ſeldom more than one hundred and five in a minute; whereas in an ephemera, or in the firſt paroxyſm of an intermittent, it very often riſes to one hundred and twenty or thirty pulſations. It is ſometimes full and ſtrong, always obſtructed, ſometimes ſmall and particularly ſoft, ſometimes of the natural fulneſs, but with a particular degree of ſoftneſs; when this is the caſe, it indicates a fever which will be very violent, eſpecially in reſpect to the depreſſion of ſtrength.

The author wiſhes in this place to explain his terms with regard to ſtrength, hardneſs, ſoftneſs, obſtruction, or freedom of the pulſe.

Great numbers of practitioners have called obſtruction hardneſs, freedom ſoftneſs of the pulſe.

The feelings of the organs of the ſenſes are often different in different men. The ear, for example, of one perſon, can diſtinguiſh accurately the different notes on the muſical ſcale; the ear of another can diſtinguiſh nothing but that the ſound is louder or leſs loud. In like manner, the fingers of ſome are only capable of diſtinguiſhing whether the pulſe is more or leſs frequent, and that

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by comparing it with ſome other meaſure of time. It is neceſſary, therefore, that we ſhould have ſome other criterion of the differences of pulſation than the feel of the practitioner, in order to be able to teach young practitioners how to diſcover if they have any power of feeling different ſenſations, and diſtinguiſhing them.

When the pulſe is hard, whether it be ſtrong or not, the blood is long in coagulating; the conſequence of which is, that if the blood flow from a vein in a large ſtream through the air, into a veſſel nearly the ſection of a ſphere, the red particles will fall down towards the bottom of the blood, and leave the upper ſurface of the coagulum colourleſs after the blood has coagulated: whereas if the pulſe be ſtrong, without any hardneſs, the blood will coagulate much ſooner under the ſame circumſtances, ſo as not to give time for the red particles to fall down from the upper ſurface of the coagulum, which will therefore be red.

In like manner, if the pulſe be obſtructed and not hard, the coagulum will be red on the upper ſurface.

This then is a criterion by which ſtrength and obſtruction may be diſtinguiſhed from hardneſs, viz. when the pulſe is hard, the upper ſurface of the coagulum is not red.

It is neceſſary that the practitioner ſhould make himſelf maſter of the feel of the pulſation under theſe different circumſtances. This may be done by feeling the pulſe of a patient affected with an intermittent, in which there is often ſtrength, fulneſs and obſtruction, but no hardneſs, and in which caſe a quantity of blood may be taken away without any detriment to the patient; and again, in a pleuriſy, where there is ſtrength and hardneſs, and in which blood is taken away with great propriety.

By theſe means any man with the faculty of feeling, ſo as to diſtinguiſh the different ſenſations ariſing from pulſations, may make himſelf maſter of the difference between hardneſs and ſtrength, or obſtruction, which, as will be ſhewn afterwards, is very eſſential in the management of fever, obſtruction being an eſſential ſymptom of fever. Hardneſs is an irregularity, and conſequently is to be referred to that treatiſe, in which irregular fevers are to be conſidered.

In the ſame manner, when upon the application of the cauſe of fever ſome ſlight ſymptoms of fever take place, and continue ſome time, whatever were the previous ſymptoms, on the attack of the fever, coldneſs ſuddenly takes place, followed by heat; or otherwiſe, a much greater degree of ſenſe of heat ariſes ſuddenly, with a much greater depreſſion of ſtrength and a ſimilar pulſation of the arteries, &c.

Along with theſe ſymptoms, there is generally pain in the forehead, and all the other appearances which ariſe in an ephemera, or the firſt paroxyſm of an intermittent, and have been enumerated in the diſſertations on thoſe ſubjects. They proceed in the ſame manner, excepting that they are much more irregular in the firſt paroxyſm of a continued fever, than they are in an ephemera or an intermittent, where the firſt paroxyſm of an intermittent is terminated by a criſis. The ſenſe of coldneſs and heat return alternately, without any regular duration of either. This happens eſpecially when the fever is ſevere. The depreſſion of ſtrength is likewiſe greater or leſs at different times; thus there is an irregularity during the whole of the firſt paroxyſm.

It has been a queſtion much agitated by authors, whether fevers laſting for many days conſiſt of one paroxyſm, or of many paroxyſms following each other, as happens in intermittents.

It has been obſerved, in the diſſertation on a regular tertian, that for the firſt days there was no criſis in many caſes, but the diſeaſe, as it went on, ſhewed more and more critical ſymptoms, until a very evident, or, at laſt, a complete criſis took place, and the diſeaſe terminated in an intermittent. In continued fevers the appearances are ſuch as take place at the beginning of intermittents, where there is at firſt no intermiſſion; the paroxyſm does not terminate in a criſis, but there is ſome relaxation, after which a freſh paroxyſm takes place. This may be conſidered as an argument, that a continued fever is only a variety of an intermittent. The Author of the world has laid the diſtinctions between different things ſo as to run into one another by ſhades. How much ſoever, for example, a man may differ from wheat, yet nevertheleſs it is difficult to determine whether a ſpunge be an animal or vegetable ſubſtance; things, therefore, being ſhaded into each other, by no means prove them to be the ſame. It requires, therefore, that we ſhould be extremely circumſpect in determining that a continued fever is eſſentially the ſame diſeaſe with an intermittent and an ephemera.

There is ſimilarity of all the appearances in the three diſeaſes, excepting that one criſis often happens in a continued fever, and entirely carries off the diſeaſe, which takes place likewiſe in the ephemera; although ſometimes no criſis takes place in a continued fever, this happens neither in an intermittent nor in an ephemera. This ſimilarity has determined practitioners of the greateſt eminence through the whole hiſtory of medicine to conſider them as the ſame diſeaſe. Many have thought they varied, in this circumſtance, that in a continued fever the ſubſequent paroxyſm takes place in the hot fit of the prior paroxyſm. In an ephemera no ſubſequent paroxyſm takes place. In an intermittent, the ſubſequent paroxyſms happen in the criſis, or after the criſis of the former.

A queſtion ariſes, how long the firſt paroxyſm of a continued fever laſts, before the ſecond paroxyſm begins.

The author has ſeen it happen, in a few caſes of an ephemera, that the diſeaſe has continued thirty-ſix hours, and in one caſe above forty hours from the attack to the termination of the criſis, but this very rarely.

The firſt attack of a fever begins more frequently by much, as has been obſerved in a former diſſertation, between ſix o'clock in the morning and eight in the evening. In a continued fever, if the attack ſhould be between ſix o'clock in the morning and eight in the evening of one day, a freſh exacerbation or ſudden increaſe of the diſeaſe takes place, between five and ſix in the evening of the ſucceeding day.

It has been ſaid, that ſometimes a paroxyſm of fever takes place as ſoon as the cauſe is applied; likewiſe that fever takes place at leaſt ten times between ſix in the morning and eight in the evening for once in the remaining part of the twenty-four hours. This might be accounted for, from a man being expoſed to the cauſes of fever much oftener in the day-time than during the night, when the attack follows the cauſe immediately. When ſome ſlight ſymptoms only of the diſeaſe take place at the time of the application of the cauſes, and when no appearances occur for many days after the application of the firſt cauſe; if in either of theſe caſes the firſt paroxyſm begins between ſix in the morning and eight in the evening, the author has nothing to offer to account for this phenomenon. That it is a fact he is well aſſured, from the obſervation he has made for many years in caſes of a great many patients.

If it be true that a continued fever is only paroxyſms of fever running into one another, it becomes a queſtion how long theſe paroxyſms laſt, and what is the cauſe of their return. In the firſt place, ſo far as the author's obſervation has gone, the firſt paroxyſm of continued fever laſts, if it begins at ſix in the morning, or at any other hour before eight the evening, until five and ſix in the evening of the following civil day. That is, if it ſhould happen at any time between ſix o'clock in the morning and eight o'clock in the evening, the ſecond exacerbation will begin at ſix o'clock nearly of the ſubſequent civil day. But if the firſt paroxyſm ſhould take place between eight o'clock in the evening and five o'clock in the morning, then the ſecond exacerbation will take place in the evening of the ſubſequent day, if it ſhould be before midnight; on the ſame day, if it ſhould be after midnight.

In other words, ſuppoſing that the firſt paroxyſm of fever ſhould take place at ſix o'clock on Sunday morning, or at any time between that and ſix o'clock on Monday morning, the ſecond paroxyſm will take place between five and ſix on Monday evening.

The next thing to be attended to, is the reaſon why this ſecond exacerbation, or new paroxyſm of fever, ſhould take place between five and ſix o'clock in the evening.

It has been before remarked, that all men, even in the moſt perfect health, have a feveriſh attack in the evening, which goes off in the morning. In a man in perfect health this attack, although not much marked, is yet ſufficiently ſenſible. In the firſt place, there is a depreſſion of ſtrength, both in the body and the mind, ſufficiently evident. There is not the ſame alacrity of mind in the evening, nor power of memory, imagination, and judgment, as there is in the morning. This propoſition has been controverted by poets and philoſophers, who have often praiſed midnight ſtudy. Two things might be objected to them; firſt, they are not willing to give up their connexions with the world for the ſake of ſtudy; and therefore defer it until every body elſe is at reſt. Secondly, there is that indolence in mankind, eſpecially in thoſe who conſider ſpeculation as their ſupreme happineſs, which makes them wiſh to defer every thing to the laſt moment.

It is eaſy, however, to refer the fact to the feeling, or in other words, to the experience of all mankind; the alacrity of the mind in the morning, and its dulneſs in the evening, have the one been celebrated by poets and philoſophers, and the other reprobated.

The muſcular power of the body is likewiſe greater in the morning: labourers, whatever may be their habits, univerſally get up in the morning to their work, and go ſoon to bed: hunters riſe early in purſuit of their game in every ſituation; even where the ſcent of the game lies better on the ground, as where a wood is encloſed, in which it is equal at any time of the twenty-four hours.

Some of the appearances which conſtitute part of fever, ſuch as the contraction of the ſmall veſſels, are evidently much greater in the evening. The complexion of a woman is pale in the evening, that was roſy in the morning.

If in perfect health this natural evening paroxyſm of fever is viſible, it is infinitely more ſo in diſeaſes of moſt kinds, there being none in which it has not been obſerved by practitioners; ſo much ſo, that it is not neceſſary for any further illuſtration of it to be laid down here.

The cauſe of this natural evening paroxyſm of fever has not as yet been inveſtigated. It cannot depend upon the ſun, it happens at a time of day when he is at no particular meridian; much leſs can it depend upon the moon, it is fixed to a particular time in the evening, whereas her appearance is perfectly mutable. It might be ſuppoſed to depend upon the fatigue of the day, but it happens equally to the labourer who goes to the plough at four o'clock in the morning, and to bed at eight in the evening, and to a woman who goes to bed at four in the morning, and riſes at two in the afternoon.

It may be ſaid, that it depends on habit; as infants, until they come to a certain age, are put to bed early in the evening, and riſe early in the morning. This reaſon is refuted by the following circumſtance: the ſun riſes at different times at different parts of the earth, ſo that it is at one part of the earth morning, when in another part of the earth it is evening. If a man, brought up in one part of the earth, where it is morning, when it is evening in another part, ſhould paſs from his native country to the country in which his former morning is evening, if it were habit, the natural evening paroxyſm of fever ought to take place in him in the morning; but the fact is, that it takes place in the evening, in the ſame manner as in the natives of that country.

No method has, therefore, hitherto been found out, to account for this appearance.

Whatever be the cauſe of the return of a paroxyſm of fever in the evening, even in health, it is evident that this propenſity is the cauſe of the return of the ſecond paroxyſm in a continued fever.

It has been ſaid, that if a fever takes place any time between five and ſix o'clock in the morning of one civil day, and five and ſix in the morning of the ſecond day, the ſecond paroxyſm takes place between five and ſix o'clock in the evening of the ſecond day. It ſometimes happens, however, that no ſecond paroxyſm takes place between five and ſix in the evening of the ſecond day; in this caſe, the fever wears off, and is an ephemera; ſuch caſes, however, rarely happen. The author has indeed had occaſion to obſerve them four or five times in his practice. As far as can be judged, therefore, it is the diſpoſition to natural evening paroxyſm of fever, that reproduces the paroxyſms of continued fevers.

The cauſes then which reproduce fever are apparently two, one that reproduces a remittent and intermittent fever at the expiration of a certain period of time; the other the natural evening paroxyſm, which reproduces a continued fever; both of which, as far as the ſcience of medicine has hitherto been inveſtigated, are perfectly incomprehenſible.

It is to be remarked in the firſt place, that theſe different cauſes ſerve to diſtinguiſh between an intermittent and remittent on one hand, and a continued fever on the other hand. For if we find, in the firſt days of a fever, when there is no perfect intermiſſion, that the exacerbation takes place between five and ſix o'clock in the evening, or a little later, we may conclude, that the diſeaſe is a continued fever; but if the exacerbations take place at any other time in the twenty-four hours, that it will terminate in an intermittent or remittent fever.

The next circumſtance, that depends upon this doctrine, is the time of the beginning of a continued fever.

There has been much ſaid about the days of a fever; it is clearly impoſſible to determine the day, unleſs we can tell on what day the fever began. If in continued fever, the ſecond exacerbation always takes place between five and ſix o'clock in the evening; the third paroxyſm, and the fourth, fifth, &c. alſo begin between five and ſix o'clock in the evening; the firſt muſt be conceived to begin between five and ſix o'clock in the evening, whatever time it really took place, according to the rule already laid down, by which it has been ſhewn at what time the ſecond paroxyſm actually takes place, the firſt being conſidered as beginning 24 hours ſooner.

It has been already ſaid, that the firſt paroxyſm of a continued fever is irregular, with a greater or leſs degree of violence, ſeldom, however, ſo violent as the ſubſequent paroxyſm.

The ſecond paroxyſm is generally regular; it rarely begins with a ſenſe of coldneſs; the head-ach is conſiderably increaſed; the pulſe is from ninety ſtrokes in a minute to an hundred and ten, ſeldom more frequent, excepting when the diſeaſe is to be an irregular continued fever, which is to be the ſubject of a future diſſertation; it is always obſtructed, not often hard; when it is hard, this likewiſe indicates irregular fever, which will alſo be the ſubject of a future diſſertation; laſtly, it is of different degrees of fulneſs and ſtrength. Depreſſion of ſtrength is undoubtedly an univerſal and conſtant ſymptom of fever, and therefore cannot be conſidered as an irregularity; the degree, however, of depreſſion of ſtrength, is very various; when it is very great, the pulſe has a very peculiar feel of ſoftneſs.

The heat taken by the thermometer under the tongue, is from ninety-nine to one hundred and five of Fahrenheit's thermometer; to the feel of the patient, it is generally greater, ſometimes exceſſive; to another perſon, always more or leſs pungent. The appetite is likewiſe loſt to a greater or leſs degree, according to the violence of the diſeaſe, often totally: there is always ſome degree of nauſea, often ſickneſs, and ſometimes vomiting. Thirſt is ſometimes very great, ſometimes inconſiderable, or hardly felt. The evacuations are generally ſuppreſſed; the patient is coſtive; the ſkin dry; the urine is in ſmall quantity, and after ſtanding ſome time, continues tranſparent; the mouth is dry. The mind is always more or leſs confuſed; ſometimes even ſo early as in the ſecond paroxyſm, the patient is delirious during the whole night; ſometimes again the ſleep is only confuſed with dreams. The tongue, which in the firſt paroxyſm was only covered all over with a very thin whitiſh cruſt, is now generally become browner; if the fever is more ſevere, this cruſt is thicker: when the depreſſion of ſtrength is great, it is clammy. There is a ſenſe of weight about the precordia, likewiſe a ſenſe of depreſſion and anxiety.

The author has heſitated much whether he ſhould deſcribe a fever, in which the ſtrength is very much depreſſed, as an irregular fever. After mature deliberation, however, he can hardly allow himſelf to diſtinguiſh it as ſuch. It is true, Sir John Pringle, and many other practitioners, being attracted by the appearance of putrefaction which takes place in fevers where the ſtrength is greatly depreſſed, have ſuppoſed that the diſeaſe depends on putrefaction of the fluids, and not the putrefaction of the fluids upon the diſeaſe. If the putrefaction of the fluids is ſubſequent to the depreſſion of ſtrength, and if a certain degree of depreſſion of ſtrength takes place in all fevers, in that caſe certainly the putrefaction of the fluids cannot be conſidered either as the effect of putrefaction, or as an accident happening in fevers. This argument will be more fully entered into afterwards; it is therefore only to be remarked now, that according to the degree of depreſſion of ſtrength, a greater or leſs weight is felt about the precordia: ſometimes depreſſion of the mind, as if ſome great misfortune had happened to the patient, which he cannot deſcribe, and ſighs ariſe involuntary from his breaſt.

The degree of depreſſion of ſtrength generally determines the wiſh to be in bed; where, as has already been obſerved, the muſcles have the leaſt exertion. When it is not very great, however, and when the patient is naturally ſpirited, he wiſhes to get up in the day-time, but is generally forced to lie down ſeveral times in the courſe of the day. The ſkin appears of a duſky dingy colour, the ground of which has been already explained in a former diſſertation.

There is pain in the forehead, immediately over the eyes, which feels to the patient in the ſkin, or immediately below it. This pain is ſometimes ſlight, ſometimes very ſevere; ſometimes reaches all round the head, but is always external, to the feel of the patient.

Sometimes there is depreſſion of ſtrength only in the extremities, and a feel of wearineſs. At other times there is a feel of ſoreneſs, as if the patient had been beat all over, or ſuch as ariſes after a very ſtrong contraction of any muſcle. This laſt ſymptom takes place only when the fever is very ſevere. All theſe appearances come on, or are increaſed, between five and ſix o'clock in the evening; increaſe gradually, and are at their greateſt height about two or three o'clock in the morning. Afterwards, in ſlighter caſes, the patient has ſome tolerable ſleep; it is a very ſevere fever indeed in which he has none; but even then he is leſs reſtleſs, and is relieved in a greater or leſs degree from all the ſymptoms about five or ſix o'clock in the morning. Although all the appearances that have been enumerated remain, yet they remain with leſs ſeverity than they were felt about two o'clock in the morning.

The third paroxyſm is more ſevere than the ſecond, and ſo every evening the diſeaſe continues to increaſe for the firſt week.

The author has already ventured to hint an opinion, that the putrefaction of the fluids, which ſometimes takes place in fever, is the conſequence of the depreſſion of ſtrength, and not the cauſe of it. The contrary opinion has been held by Sir John Pringle, and many other of the firſt authorities in medicine, and therefore requires very particular attention.

It has pleaſed the Almighty, that animals and vegetables ſhould be continued by ſucceſſion. The preſent race of both die, ſome in a ſhorter, ſome in a longer period of time; but all die at laſt, and are ſucceeded by their progeny, each ſpecies producing ſucceſſors perfectly, or nearly ſimilar in properties to itſelf.

When one race dies, it is evident that ſome means ſhould be adapted to deſtroy the matter of which it conſiſted. A new race of vegetables would have no room on the earth, if the old vegetables remained exactly in the ſame ſituation in which they died; a tree would ſoon be buried in its own leaves; even animals would ſoon cover the whole face of the earth, ſo as not to give room to new animals, without conſtantly treading over the bodies of their anceſtors; the ſea would become one maſs of dead fiſh.

The all-wiſe Creator of all beings has, therefore, found means, with perfect facility, to get rid of this, as well as every other difficulty, that the ſmall degree of diſcernment of mankind has been able to perceive in the creation. There are two modes in which this is performed, as far as the ſubject has been inveſtigated. One is by creating many inſects and reptiles, which live upon dead matter; theſe are much more numerous in the warmer regions of the earth, where both vegetation and the growth of animals go on with greater rapidity. How ſoon do the termites deſtroy in a warm climate all dead vegetable matter!

The other mode is by making animal and vegetable ſubſtances ſubject to proceſſes, which are called fermentations, the ground of which the author has endeavoured to ſet forth in his Treatiſe on Digeſtion, which fermentations terminate in putrefaction. It would be improper here to ſay any thing further of this proceſs, than that it converts all animal and vegetable matter into certain ſalts, into vapours in a ſmall proportion, but principally into earth and water.

It has been obſerved, in recounting the cauſes of fever, that one cauſe was the vapour ariſing from putrefying ſubſtances.

If to dead animal matter a putrefying ſubſtance, or vapour ariſing from a putrefying ſubſtance be applied, putrefaction will take place in it much more readily than in a dead animal or vegetable ſubſtance to which no putrefying ſubſtance has been applied. A queſtion therefore ariſes, whether a putrefying ſubſtance, or the vapour ariſing from a putrefying ſubſtance, applied to living animal matter, will produce putrefaction ſooner than if no ſuch ſubſtance or vapour were applied.

It has been already ſhewn, that it is neceſſary that dead animal and vegetable ſubſtances ſhould be deſtroyed; it has alſo been ſaid, that it has pleaſed the Almighty, that all living animals and vegetables ſhould die.

The manner in which all living animal and vegetable ſubſtances are to die, and ſo be loſt, is very different, however, from the mode in which animal and vegetable matter when dead, is to be deſtroyed.

A living animal, or vegetable, is produced by its parent, weak at firſt and imperfect; it acquires perfection by degrees, until it becomes capable of all the purpoſes for which it is deſtined. Among theſe purpoſes, one is, to be capable of propagating its ſpecies; and for this, after ſome time, it has leſs and leſs power; at laſt its faculties begin to decay, and gradually decay until the whole of them are loſt, and the animal or vegetable dies. In man this progreſs is more marked than in any other part of the creation.

In this manner man is to live through his life and die, but during his life he is not ſubject to the laws of dead animal and vegetable matter; among theſe, therefore, not ſubject to putrefaction. If man, when alive, were ſubject to the laws of putrefaction, why ſhould he be placed in every ſituation in which putrefaction moſt readily takes place?

Putrefaction takes place moſt readily in a heat of one hundred degrees of Farhenheit's thermometer: it goes on much more ſlowly in a heat of one hundred and ten; hardly in animal ſubſtances in the heat of one hundred and fifty; it goes on more ſlowly in leſs degrees of heat than one hundred, and ſcarcely at all in forty degrees of Fahrenheit's thermometer.

The heat of the human body, in health and vigour, is generally ninety-ſeven degrees and an half of Fahrenheit's thermometer. It varies in diſeaſe, ſometimes from ninety-two to one hundred and ſeven. It is always therefore, both in health and diſeaſe, near the moſt proper heat for putrefaction, yet no appearances of putrefaction take place in the blood, nor in any part which is alive, excepting in fever and ſea-ſcurvy.

Another circumſtance which forwards putrefaction is expoſure to pure air. If an animal ſubſtance, the moment it dies, is perfectly excluded from pure air, it will not putrefy; on the other hand, if a great blaſt of pure air be conſtantly applied to it, it will putrefy much more ſlowly than if a moderate quantity be applied. The application of a moderate quantity, therefore, is the beſt means of producing putrefaction; a moderate quantity of pure air is actually applied to the matter of the body of a living man. The vapours conſtituting the atmoſphere contain a fourth part of pure air, are applied only to the ſurfaces of the body, that is, to the ſkin; the ſurface of the noſtrils, mouth, and lungs, which form a very ſmall part of the ſolids; and the pure air of the atmoſphere has a moderate effect on the blood paſſing through the lungs. That it does affect it in a certain degree appears from its giving a yellow colour to the red blood, ſo as to render it ſcarlet. As far, therefore, as application of air tends to produce putrefaction, the human body is in that ſituation, in which putrefaction would moſt readily take place.

Another circumſtance under which the putrefactive fermentation takes place more readily is motion. In the human body the fluids are in conſtant and very rapid motion: the heart contracts ſeventy-three times in a minute. It has been ſuppoſed, that as near as can be meaſured, it ſends out at each contraction two ounces of blood in a minute; ſuppoſing then that the blood is in the largeſt quantity that has ever been ſtated, to wit, ſixty pounds, the whole of it will be circulated through all the canals in the body, and return to the heart, in ſix minutes.

To give a more diſtinct idea of the velocity with which the blood moves in the veins, where it moves with the leaſt velocity, let a man compreſs a vein on the back of his hand at ſome diſtance from the valve, immediately above, and ſqueeze out the blood up to the next valve, ſo that the vein ſhall diſappear; then let him immediately remove the preſſure, he will find the vein fill again faſter than his eye can trace. The blood, therefore, has always conſtant and rapid motion.

It is evident, therefore, that the matter of the living human body is always in circumſtances, in which dead animal matter would putrefy moſt readily.

It has been alledged, that certain ſalts, or other matters, contained in the blood, and other parts of a living man, prevent the other matter in his body from putrefying, or that the putreſcent matters were carried off, and freſh matter introduced, ſo as to prevent putrefaction from taking place. Thoſe who have advanced the former part of this doctrine have forgotten, that if the body of a dead man is left in the heat of ninety-ſeven and a half degrees of Fahrenheit's thermometer, without motion and application of the air to the blood or the lungs, although the ſame ſalts, or other ſubſtances remain exactly, putrefaction takes place in twenty-four hours in a very violent degree.

Againſt the opinion of ſome authors, that matter is conſtantly carried off, and new matter introduced, and by that means the putrefaction prevented, the following argument is ſufficient. It is well known, that a man may live under all the neceſſary and moſt powerful circumſtances of putrefaction, without any thing being taken in for twenty-four hours, or evacuated, excepting the water that flies off by inſenſible perſpiration; yet there is not the ſmalleſt appearance of putrefaction in the body. If, however, a man had been deſtroyed inſtantly, when in perfect health, by ſome accident, ſuch as a wound in the ſpinal marrow, between the firſt and ſecond vertebræ of the neck; putrefaction would take place in that ſpace of time, if the temperature of the dead body was confined to ninety-ſeven degrees and an half of Fahrenheit's thermometer, although it was not aſſiſted by expoſure to the air in reſpiration, or by motion.

Since, therefore, it is known, that although the body of a living man be in every ſituation moſt proper for putrefaction, and nothing is applied which would prevent the ſame body, if it was dead, from putrefying, nevertheleſs the body of a living man has no appearance of putrefaction; it neceſſarily follows that there is in the life, independent of all other circumſtances, a power of preventing putrefaction. In other words, it is the property of living matter to remain untainted by putrefaction; the property of dead animal and vegetable matter to putrefy.

Mankind, ever inquiſitive, from the diſpoſition which the Almighty has choſen to place in their minds, are conſtantly endeavouring to find reaſons for every effect happening according to ſomething they are already acquainted with. In this particular caſe they have ſuppoſed, that the operations which take place in living animal matter ſhould agree chymically with operations that they can perform in dead animal matter. They have, therefore, concluded, that ſince animal matter, when alive, is prevented from putrefying in certain circumſtances in which it would have putrefied very readily when dead, this muſt be occaſioned by means which would have prevented dead animal matter from putrefying, if it had been in the ſame circumſtances. No ſuch means, however, have been ſhewn to be applied to living animal matter.

Was it not as eaſy for the Almighty to make a law, that living animal matter ſhould not putrefy, and that dead animal matter ſhould putrefy, as to make a law that if one maſs of matter be placed at a diſtance from another maſs, the two ſhould immediately, if not prevented by ſome cauſe, begin to approach each other.

The author by no means wiſhes it to be underſtood, that it is unneceſſary to enquire, whether it be or be not ſo; that muſt be inveſtigated by experiments and obſervations. He has ſhewn that every circumſtance which would make putrefaction take place in the dead body of a man, is conſtantly applied in the living body; and that no chymical circumſtance has been diſcovered in the body of a living man, to prevent ſuch putrefaction from taking place. He therefore concludes, that it is an original law given by the Creator, that living matter ſhould not putrefy, and that dead animal or vegetable matter ſhould putrefy and be deſtroyed.

The heat of living animal and vegetable ſubſtances will admit of a parity of reaſoning; but this is foreign to the preſent ſubject.

Thus far the author has enquired, whether the human body, when alive, has a power of reſiſting putrefaction when expoſed to all the circumſtances which promote putrefaction in a dead human body.

The point that the author ſet out with was, whether putreſcent matter, applied to the body, produced a fever, and in that fever depreſſion of ſtrength, which occaſioned putrefaction; or if the putrid matter applied to the body occaſioned putrefaction of the fluids, as a ferment or otherwiſe, and that putrefaction brought on a depreſſion of ſtrength.

Many people are conſtantly expoſed to putrid matter, both in a ſolid and fluid ſtate; as alſo to the vapours ariſing from putrid ſubſtances, and yet no putrefaction, or any appearance of putrefaction, is found in their blood: thoſe, for example, who are employed in cleaning out putrid ditches, or the common ſewers of great towns, in their blood, or in any other part of their body, no appearance of putrefaction is ever perceived.

Unleſs, therefore, a fever is produced, and depreſſion of ſtrength as part of that fever, it is evident that putrid matter does not occaſion any appearance of putrefaction.

When a fever is produced by putrid vapour, or any other cauſe, if the fever be in a great degree, there is great depreſſion of ſtrength at the firſt; but for ſeveral days there is no appearance whatever of any putrefaction in the fluids. Blood taken from the arm coagulates firmly; the tongue is covered with a whitiſh cruſt; there is no putrid ſmell in the air from the lungs, nor in any of the other evacuations; there are no marks upon the ſkin; there is no appearance of putrefaction in ſhort in any parts of the body; but beſides the great feel of depreſſion of bodily ſtrength, there is great depreſſion of ſpirits, and ſenſe of weight about the precordia, with a peculiar imbecility in the pulſe.

As therefore the depreſſion of ſtrength takes place firſt, and the putrefaction afterwards, according to the uſual precedence of cauſe and effect, to wit, that the effect follows the cauſe, it ſeems to be ſufficiently proved, that depreſſion of ſtrength is the cauſe of the putrefaction, and not the putrefaction the cauſe of the depreſſion of ſtrength.

In ſea ſcurvy, as it is called, the putrefaction of the fluids ariſes undoubtedly from animal food being uſed without a ſufficient quantity of vegetables of a looſe texture, to prevent it from entering in part into the putrefactive fermentation during the digeſtion. This happens eſpecially when the animal food is preſerved by ſalt. In ſuch caſes a chyle is thrown into the blood-veſſels loaded with putreſcent matter. In this diſeaſe the firſt ſymptoms which take place are always languor and depreſſion of ſtrength, and inability of exerting the muſcular powers. Afterwards ſymptoms of putrefaction come on. This ſhews that even in this caſe it is the depreſſion of ſtrength that occaſions the putrefaction.

Since, therefore, the ſolids and fluids of a living man are placed in ſituations the moſt proper for putrefaction;

Since there is nothing applied to the living body to prevent putrefaction, which is not alſo applied to the dead body when it putrefies very faſt;

Since no freſh matter is added to the living body during the time in which the dead body, placed in the ſame circumſtances, would putrefy.

Since the depreſſion of ſtrength takes place always in a fever before there be any appearances of putrefaction;

And laſtly, ſince when the blood is rendered putrid by putreſcent matter being thrown into it, depreſſion of ſtrength always takes place before there be any appearance of putrefaction;

It may be concluded, that the depreſſion of ſtrength is the cauſe of the putrefaction of the fluids in fever, and not the putrefaction of the fluids the cauſe of the depreſſion of ſtrength.

Symptoms of putrefaction rarely appear in the ſecond paroxyſm of a continued fever; ſeldom in the third paroxyſm, or third day of the diſeaſe, counting as has been already laid down.

The ſymptoms of putrefaction, when they firſt take place, are alterations in the appearance of the ſecretions. The urine firſt has a more viſcid appearance than common; is frothy, browner, and not abſolutely tranſparent, although there is no cloud or ſediment. If the putrefaction is ſtill greater, it becomes of a dark brown, and loſes its tranſparency, and ſometimes a dark brown ſediment falls to the bottom of the veſſel, after it has ſtood an hour or two. The fœces begin to be fœtid, and at laſt have a very putrid fœtor, which, however, is to be diſtinguiſhed from the fœtor of the inflammable air, which is often diſcharged and is very fœtid, although there be no putrefaction. The fœces are alſo not uncommonly black and liquid. The ſweat, if there ſhould be any, tinges the linen with a dilute ichorous appearance. The cruſt which forms upon the tongue appears browner and more clammy; as the fever goes on it grows browner and browner, until at laſt it is quite black; the teeth, rubbing it off from the tongue, become as it were buried in a black ſlime; this hardly takes place before the end of the firſt week of the diſeaſe; the breath alſo becomes fœtid.

There ſometimes appears upon the ſkin, but not excepting the putrefaction has ariſen to a conſiderable degree, a kind of diſcolouration, ſimilar to the appearances which we find in poliſhed marble, not purely white, which are called bluiſh veins. When the degree of putrefaction is more conſiderable, dark purple ſpots, of various ſizes, are formed in the ſkin; if the putrefaction be ſtill more conſiderable, the ſkin becomes all over of a dark purple colour.

At the beginning, when the putrefaction has not gone to any great length, if blood ſhould happen to have been taken from the arm, the coagulum is looſe and eaſily broken, the ſerum being hardly of a browner colour than common. Sometimes when the depreſſion of ſtrength is not very great, the blood retains this appearance during the whole coruſe of the diſeaſe. Should the patient become ſo weak, as to be carried off by the weakneſs, this appearance is not altered, for it is depreſſion of ſtrength, not weakneſs, which produces putrefaction.

If there is greater depreſſion of ſtrength, and by conſequence putrefaction is in a greater degeee, the ſerum becomes of a browner colour. In a ſtill further degree, it is red: in this caſe, on examining the red particles with a microſcope, many of them are found diminiſhed in ſize, and not regular ſpheres, or oblate ſpheroids; ſome have the appearance of being broken in two, and look like half moons: but moſt of them retain their healthy appearance. If the putrefaction goes on ſtill further, there is hardly any diſtinction between ſerum and coagulum; if ſtill further, the coagulable lymph forms a kind of bag, leaving the ſerum on the outſide diſtinct. In the ſubſtance of the bag itſelf there is no intermixture of red particles, ſo that it looks like the buff, which is on the ſurface of the coagulum in caſes of general inflammation; but within this bag a red fluid is contained, which, upon being examined with a microſcope, ſhews the red particles of a variety of forms.

All theſe appearances the author has ſeen. There are ſome caſes upon record in which it is ſtated, that the blood was abſolutely fœtid; and a practitioner of perfect credit, who practiſed a conſiderable time in hot climates, told me he had ſeen ſeveral caſes, where the blood taken from the arm was actually fœtid.

As depreſſion of ſtrength produces putrefaction of the fluids, ſo, on the other hand, putrefaction of the fluids occaſions greater depreſſion of ſtrength, ſometimes in a degree that proves fatal: in this caſe the pulſe often towards the end beats faſter than can be counted.

It happens more frequently that hemorrhage ariſes, almoſt indiſcriminately, from any of the cavities which open externally: theſe hemorrhages are very dangerous, and often fatal.

Depreſſion of ſtrength happens in a greater or leſs degree in all fevers; in many it does not happen in ſuch a degree as to produce any ſenſible appearance of putrefaction of the blood; yet as the caſes in which it does produce putrefaction of the blood, and thoſe in which it does not produce any appearance of putrefaction of it, only differ in degree, it can never form an irregularity of fever; it can only give riſe to a variety, which does not at all affect the practice, as will be afterwards ſhewn.

At particular times it is very rare that any great mark of putrefaction takes place; at other times it is more frequent. It was common enough in London from one thouſand ſeven hundred and fifty, to one thouſand ſeven hundred and ſixty-five; from that time the ſeverer ſymptoms of putrefaction have been ſeldomer ſeen; and from one thouſand ſeven hundred and ſeventy-five to this period, one thouſand ſeven hundred and ninety-ſeven, they have been very rarely ſeen indeed in fevers.

Among the ſymptoms of the diſeaſe, which gradually increaſe from the ſecond exacerbation to the end of the firſt week, or ſometimes a little longer, is delirium, which will likewiſe require a more minute inveſtigation.

In the firſt place, it is neceſſary to diſtinguiſh between two derangements of the mind, delirium and mania.

The common diſtinction has been, that delirium is derangement of the mind with fever, and mania without fever. Thoſe who have given this diſtinction, have by no means that idea of fever which the author has endeavoured to illuſtrate; if they meant by fever frequency of the pulſe, mania undoubtedly exiſts very often with frequency of the pulſe.

It is rare for a perſon affected with mania to be ſeized with fever; it is alſo very rare for a perſon in a fever, ſuch as the author is endeavouring to deſcribe, to be ſeized with mania.

Mania is that derangement of the mind in which, although the material parts of the organs of ſenſation are in perfect order, yet the mind often takes wrong ideas from them. Although a windmill be painted on the retina, the figure repreſented to the mind is that of a giant. In delirium, the impreſſion made on the organs of the ſenſes is always imperfect, in as far as the material part is concerned: the eye, for example, is incapable of adjuſting itſelf ſo as to form a diſtinct image on the retina, which can be perceived by the mind; but in as far as it can be perceived, it is always true. A man in a delirium never takes one object for another;

he only has an obſcure ſenſation, which he endeavours to take ſome idea from. A man in mania; ſuppoſing the ideas taken from his ſenſes and brought back by his memory, were true, has his imagination ſuch as often to arrange them perfectly, and his judgment is ſometimes clear in determining whether the arrangement is juſt.

A man in delirium, having no accurate idea impreſſed by the organs of ſenſes, nor brought up by the memory, has nothing in his mind but complete confuſion.

In mania, agreeable objects frequently occupy the mind; in delirium, hardly ever. The patient is wandering among tombs, falling over precipices, deſerted by his friends, or perpetually in ſome other misfortune.

Delirium takes place in many diſeaſes in which there is no fever. In fever delirium may ariſe from the fever itſelf, or from certain accidents which take place in irregular fevers. Delirium which takes place from fever itſelf, is at preſent to be inquire into.

When delirium has taken place from fever itſelf, it has been generally believed tha it aroſe from an inflammation of the brain There are indeed ſome caſes recorded in which it has been ſaid, that upo opening the heads of patients who hav died of delirium from fever, a ſuppuration of the brain has been found. Henc it has been concluded, that delirium i fever has always been owing to inflammation of the brain. The author has cauſe the heads of many patients, who have die with very great delirium in fever, to b opened, and never found any marks of ſuppuration. Moſt commonly the brain appeare exactly as it is commonly found. Sometime the blood-veſſels were diſtended with blood but never was any ſuppuration found Generally no uncommon appearance at all.

Among the numerous diſſections whic are made in the anatomical ſchools, many ar made of thoſe who have died of fevers; yet i

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is very rare for any thing like ſuppuration in the brain to be ſeen.

It has juſt been ſaid, that delirium may ariſe from accidents, which take place in fevers; ſuch deliriums will be treated of in that diſſertation, in which the irregularities which ariſe in continued fevers will be deſcribed.

Delirium, ariſing from the fever itſelf, will only here be treated of. Delirium, ariſing from the fever itſelf, appears to be of two ſpecies; one, in the firſt place, in which, neither in the body, while it is alive, nor by diſſection in the dead body, can any mark of alteration in the material part of the brain be found. In the other we might have ſome ſuſpicion, even during the life-time, that the material part of the brain was altered; and ſome alteration of the material part is actually found upon diſſection after the death of the patient.

In that ſpecies of delirium, in which there is no mark of affection of the material part of the brain during the life of the patient, or on diſſection after his death, is it to be ſuppoſed that, nevertheleſs, the material part of the brain is actually affected? Is it to be taken for granted, that the mind exiſts in the brain, and governs the body, ſeated as on a throne, ſending his meſſengers to the other parts of his dominions? It may be neceſſary to conſider the queſtion.

The ſtructure of the brain is very groſsly and imperfectly known; and its ordinary appearances have been ſo well deſcribed by anatomiſts, that it is by no means neceſſary to enter into particulars here. Suffice it to ſay, that in the human body there are two laminæ, one of a whiter colour, one of a browner grey, laid upon one another, and puckered up as well as could be in the cavity of the ſcull. The whole is covered on the outſide with membranes, which touch and adhere to the ſcull on the outſide, and touch each other on the inſide, but do not adhere, ſo that fluids now and then get between them. From the white part ariſes a number of fibres, which run to every part of the body, which we call nerves. When theſe are cut through, the mind loſes its power of producing muſcular contraction. From anatomy this is the only reaſon to ſuppoſe, that the mind is ſituated in the brain, and that it can be deranged by the derangement of the material part of the brain.

Again, certain alterations of the material part of the brain undoubtedly derange the mind. A man whoſe ſcull is fractured is generally, in conſequence of the miſchief done to the brain, rendered delirious. An inflammation of the brain in many caſes produces delirium; not in all. This might lead to a belief, that the mind reſides in the brain. On the other hand, the nerves going to a part, may be totally cut through in the human body, yet motion in that part may remain; it may live long afterwards, may regain its ſenſibility, and in conſequence affect the mind, even although the nerves were not again reunited. This was the caſe in Mr. Hewſon, who in diſſecting cut the nerve going to one of his fingers; after ſome time he recovered perfect ſenſation and uſe of it, although the nerve never reunited.

Injuries done to other parts of the body, as well as the brain, produce delirium, when there is not the ſmalleſt appearance, upon diſſection, of any injury done to the brain. Inflammation of the diaphragm produces delirium and death, when on diſſection there is no apparent alteration of the brain.

The brain may alſo be very much altered, almoſt entirely converted into pus, without delirium. Of this inſtances have appeared in Dr. Hunter's diſſecting room. In one of theſe, it was well known, that there was no derangement of the mind during the inflammation or ſuppuration; but the patient was carried off by a diſeaſe, in which the brain could hardly be conceived to have its material part at all diſordered.

So far there may be very conſiderable doubt, whether delirium always ariſes from diſorder of the material part of the brain.

Again, if we refer to our feelings, we undoubtedly feel as if the memory, imagination, and judgment were in the head. The ſenſations, however, are generally referred to the part of the body to which the application is made; we feel pain in the finger when it is pricked with a needle. The paſſions are always referred to the breaſt, as common language ſhows.

Laſtly, the author has in ſeveral caſes ſeen it happen, that a delirious patient in fever, without any abatement of any of the other ſymptoms of the diſeaſe, has become perfectly ſenſible. In all theſe caſes death has followed ſhortly; that is, in leſs than twenty-four hours, as if the mind had eſcaped from the diſeaſe of the body before it had left it entirely.

All theſe conſiderations have induced a doubt in the author, whether delirium may not ariſe in fever as an affection of the mind only, independent of any affection of the material part of the body.

Another kind of delirium takes place from the fever itſelf, and the patient dies in conſequence of the delirium; or at leaſt when the delirium is very ſevere. In this kind, on diſſection, the author has found the veſſels of the brain, including the whole of it, that is, the brain, cerebellum, membranes, &c. all turgid with blood, although it never happened in any of the caſes which he has cauſed to be diſſected, that there was any peculiar affection of one part more than of another, or any thing like ſuppuration.

From the foregoing ſtatement the author is led to think, that from fever itſelf, and without any accident or irregularity, two ſpecies of delirium ariſe; one without any material affection of the brain, the other with fulneſs of the veſſels of the brain.

Independently of this conſideration, the author conceives that external appearances of two kinds of delirium take place, in conſequence of a regular continued fever itſelf, which he now means to attempt to deſcribe.

The firſt ſpecies ſeldom happens in the firſt paroxyſm of a regular continued fever, excepting it be very ſevere; there is very often ſome appearance of it in the ſecond evening of the diſeaſe; the patient ſleeps confuſedly; immediately upon waking, does not recollect his bed, or bed chamber, or the people that are about him; but recollection returns in a few minutes, the eyes are ſufficiently clear, neither confuſed nor ſtupid, nor are the blood veſſels fuller than in the ordinary ſtate.

There is a degree of perfect ſtupidity and liſtleſsneſs in the appearance of the eye, which takes place not uncommonly in the firſt exacerbation of a continued fever, which is a very fatal ſymptom, but which the author thinks is an irregularity in the diſeaſe, and which in conſequence will be taken notice of in a future diſſertation.

The want of perfect recollection, if the diſeaſe is not very violent, goes off generally in the morning, about ſeven or eight o'clock of the civil day, and the patient remains recollected till the beginning of the fourth paroxyſm, but yet not perfectly clear in his ideas, and in full poſſeſſion of the powers of his mind.

Every evening the delirium grows more and more ſevere; but ſtill there is very conſiderable relaxation in the day time, and this continues to increaſe until the ſeventh or eighth day of the diſeaſe.

When this kind of delirium ariſes to a great height, about five or ſix o'clock in the evening, the patient begins to be very confuſed; hardly to know the people about him; to talk much and confuſedly about his affairs; to be violent. This violence increaſes till about midnight, when, if the diſeaſe is very great, he endeavours to jump out of bed, or tries to climb up to the top of it, and becomes perfectly unmanageable. This goes on till two or three o'clock in the morning. Then by degrees it ſubſides, and he becomes ſomething more ſenſible about four or five o'clock in the morning. Afterwards perhaps he gets a little ſleep, wakes not ſo confuſed, and during the day-time remains more or leſs ſenſible to external objects.

Theſe appearances go on much the ſame for five or ſix days, if no criſis ſhould take place. About the fourteenth day of the diſeaſe this delirium begins to ſubſide; the patient becomes much more ſenſible in the day-time; the evening attacks become much more conſpicuous, although not ſo violent, until the diſeaſe finally goes off, the delirium being almoſt the firſt ſymptom of it that diſappears.

The ſecond ſpecies of delirium, ariſing in a regular continued fever from the fever itſelf, ſeems to go through the following progreſs.

It alſo evidently begins to appear in the ſecond paroxyſm of the diſeaſe. There is in the evening the ſame confuſion in the perception; the eyes have their veſſels ſomewhat enlarged; the cheeks are a little fluſhed. Theſe appearances go on increaſing during the firſt week of the diſeaſe; the confuſion grows greater in the evening, and ſometimes all that violent agitation, which has been deſcribed in the former ſpecies of delirium, takes place; but in that caſe the patient does not recover in the morning, but lies ſtupid and almoſt inſenſible. Afterwards if the diſeaſe be very violent, ſtronger and more violent delirium begins to take place between five and ſix o'clock in the evening, which increaſes until two or three o'clock in the morning, and then by degrees the patient again falls into the ſame ſtupor. If this ſhould continue till about the fourteenth day, the evening attacks become by degrees leſs, but the ſtupor continues, with deafneſs, and inattention to external objects, and theſe appearances remain the very laſt ſymptoms of the diſeaſe.

The author is rather induced to believe, from the fulneſs of the veſſels of the eye, the fluſhing of the face, and the continuance of the ſtupor after the fever is gone off, that in this ſpecies of delirium the material part of the brain is affected, eſpecially as when patients have died of this ſpecies of delirium, the author, upon diſſection, has found the veſſels of the brain diſtended with blood.

It is to be obſerved, however, that between theſe two appearances of delirium there are gradations, as we find in almoſt every thing relating to the human body.

Whether the author be right or no, in ſuppoſing that there are theſe two ſpecies of delirium depending upon fever itſelf, delirium, whether it be of one ſpecies, or if both ſpecies exiſt, affects not only the mind, but the functions of the body alſo.

From the 2d day of the diſeaſe the delirium, if it takes place, gradually increaſes, and along with it all the appearances of fever; the tongue grows fouler from the beginning to the middle of the ſecond week, excepting where there are appearances of putrefaction, as have already been enumerated, there is no ſlimineſs, but a greater cruſt. Towards the end of the ſecond week this cruſt, more or leſs, diſappears, and the ſurface of the tongue looks raw when moiſt, when dry has a poliſhed glaze, eſpecially about the middle, ſome of the cruſt remaining upon the ſides, towards the edges. The ſkin has a more duſky colour, and feels uneaſy; the patient picks hairs from the bed-cloaths. The eyes appear more confuſed. Black ſpots ſeem to the patient to be moving in the air. The appetite is more or leſs diminiſhed, and often totally loſt. Spaſmodic contractions of the inteſtines take place in a greater degree. The pain in the forehead, or rather the ſenſation of it, is not ſo much complained of. The ſecretions continue ſuppreſſed, the ſkin dry, &c. There are greater flatulencies, and the fever every way increaſes along with the delirium.

Whether it be that the fever is gradually increaſing, and delirium along with it, or that delirium is the occaſion of the increaſe of it, the fever goes on in proportion with the delirium. Although the patient ſhould be inſenſible to all external objects; although he ſhould ſleep very little, or ſcarcely at all; yet, if the deglutition and reſpiration ſhould remain unimpeded, the patient is not to be deſpaired of; it happens even moſt commonly that he recovers. But if he reſpires with great difficulty, or hardly at all, or if the deglutition be almoſt totally prevented, or if attempting, it throws the patient into convulſive contractions, he rarely recovers.

On the other hand, if the other febrile appearances do not keep pace with the delirium; though the pulſe ſhould become more ſlow, and leſs obſtructed; though the tongue ſhould become cleaner and moiſter; though the colour of the ſkin ſhould become more natural, the ſecretory veſſels more relaxed; if, however, the delirium ſhould ſtill continue, without ſtupor or deafneſs, and the other marks which have been pointed as accompanying delirium, with fulneſs of the veſſels of the brain; in ſuch caſe, notwithſtanding the practitioner and by-ſtander are flattered, the patient is frequently cut off. When theſe laſt deſcribed appearances take place, that is, if delirium continues of the firſt kind without diminution, the author has conceived that ſome miſchief has happened to the brain, or ſome other part of the body; but although he has cauſed ſeveral to be opened who have died under theſe circumſtances, he has never been able to find any appearance different from what is commonly found in perſons dying of diſeaſes, which make no alteration in the ſtructure of the body.

Thus the fever continues to increaſe from the beginning of the firſt, and ſometimes to the middle of the ſecond week of the diſeaſe, and continues in the ſame degree, unleſs it ſhould be carried off by a criſis. A criſis in a continued fever, as deſcribed by Hippocrates, has been a matter of great debate, not only ſince, but probably long before his time. A criſis which takes place in a regular continued fever may be conſidered in the following manner:

The author has endeavoured to ſtate, that a continued fever differs from an intermittent, or remittent, in this, that in an intermittent or remittent the paroxyſms, or exacerbations, recur principally between ſix o'clock in the morning and five o'clock in the evening of the civil day; but that in continued fevers the exacerbations take place between five and ſix o'clock in the evening.

When a very ſevere exacerbation occurs in a regular tertian intermittent, the author has already ſaid, in a diſſertation on that ſubject, that a complete criſis ſometimes takes place, and carries off the diſeaſe. In like manner, in continued fever, if a ſtrong exacerbation ſhould happen in the evening, the ſeverity of the attack may prove fatal; but on the other hand, inſtead of producing a relaxation only between five and ſix o'clock in the morning, it may occaſion a complete criſis, and ſo in a few hours terminate the diſeaſe.

In ſpeaking of a criſis in a regular continued fever, it is always to be underſtood, and is ſo conſidered by Hippocrates, that there may be a bad criſis, and even a fatal one, from the violence of the attack of that paroxyſm; or a good criſis carrying off the diſeaſe altogether, or giving great relief to the patient.

The firſt thing to be taken into conſideration is, whether any ſuch criſis ever takes place or not. How this ſhould have become a queſtion can hardly be conceived, ſince inſtances of ſuch criſes muſt have occurred to every practitioner who has had occaſion to ſee a number of caſes of the diſeaſe. Others have inſiſted, that criſes happen in all continued fevers. This opinion can never be held by any practitioner who has had much practice in this country.

In different climates, the taking place of criſes has been variouſly deſcribed. In very hot climates, fevers are repreſented by practitioners verſed in the diſeaſes of thoſe climates, as if they were all intermittent or remittent; in which caſe, more or leſs perfect criſes always take place: to wit, in climates in which the temperature of the atmoſphere in the ſhade is from about eighty degrees to one hundred, or an hundred and ten.

The ſame thing is alſo true where the variation of the temperature is very great. In Carolina, for example, where in one day, from the variation of the wind, the heat may riſe from under ten to upwards of ſixty degrees of Fahrenheit's thermometer. In countries not quite ſo hot, and not ſo variable, as in the Mediterranean, authors have deſcribed continued fevers as almoſt always terminating by criſis. In this country, as far as the author's obſervation has gone, hardly one third of fevers have been carried off by criſes, ſuch as the author has juſt deſcribed. In colder countries, where the inhabitants expoſe themſelves to the temperature of the cold atmoſphere, as in Siberia, continued fevers are very rare, and criſes ſcarcely ever take place in them.

Hippocrates has not only laid down that continued fevers are terminated by criſes, but alſo that theſe criſes take place on certain particular days of the diſeaſe, which he has called critical days. This doctrine has afforded a ground of great diſpute.

When it is affirmed, that a fever terminates on a certain day of the diſeaſe by criſis, the firſt queſtion undoubtedly is, what is to be accounted the firſt day of the diſeaſe. The author has endeavoured to ſhow, that the beginning of the fever is not to be counted from the hour of the firſt attack, but from the ſecond attack, or firſt exacerbation of the diſeaſe, which begins between five and ſix o'clock in the evening. He has ſaid, that moſt commonly, if the diſeaſe begins before ſix o'clock in the morning, the ſecond attack takes place between five and ſix o'clock in the evening of the ſame civil day, and by conſequence that the fever is to be conſidered as beginning between five and ſix o'clock in the evening of the preceding civil day; but that generally, if the firſt attack be after ſix o'clock in the morning of the civil day, as is commonly the caſe, the fever cannot be conſidered as beginning till five or ſix o'clock in the evening of the ſame civil day, the ſecond attack, or firſt exacerbation of the diſeaſe, not happening till five or ſix o'clock in the evening of the ſubſequent civil day.

In other words, ſuppoſing the diſeaſe ſhould take place between ſix o'clock in the morning of Sunday, and ſix o'clock in the morning of Monday, the beginning of the firſt day of the fever muſt generally be taken between five and ſix o'clock in the evening of Sunday.

There are ſome caſes in which there are exceptions, but theſe will be conſidered among the irregularities which take place in the diſeaſe.

Having thus pointed out from what time we are to reckon the beginning of the diſeaſe, that criſes take place in the firſt twelve hours of the exacerbation, it will be eaſy to ſettle the days of the diſeaſe on which criſes occur.

Excepting in intermittent and remittent fevers, criſes very rarely happen in the firſt week of the diſeaſe unleſs on the ſeventh day. Hippocrates enumerates, however, in the different works aſcribed to him, the fifth, ſixth, ſeventh, ninth, eleventh, thirteenth and fourteenth, ſeventeeth, twentieth, and twenty-firſt days as critical days. He alſo ſays, that although theſe be the true critical days, yet that there are ſpurious critical days, viz. the eighth, tenth, and twelfth, &c. and that it is known whether the fever had perfect or ſpurious critical days, by one day being an indication of another. That is, if you find a ſtrong exacerbation take place on the ſeventh, and alſo conſiderable relaxation between five and ſix o'clock in the morning; if you find a coldneſs take place about ſix o'clock in the evening, or at leaſt conſiderable dryneſs of the ſkin, very great heat, greater foulneſs of the tongue, and more violent delirium on the beginning of the ſeventh day, viz. between five and ſix o'clock in the evening, and if theſe appearances increaſe very much till three or four o'clock in the morning, and then ſubſide, and the patient is more ſenſible than he was the morning before; if his ſkin and tongue become moiſter, his tongue cleaner, and the ſecretory veſſels relaxed, although no complete criſis take place, you are to conſider in that fever the ſeventh, ninth days, &c. as the true critical days, and that the patient had a better chance of recovering on theſe days. On the other hand, if a ſtronger attack and greater relaxation take place firſt, at the beginning of the eighth day of the diſeaſe, then the diſeaſe will obſerve ſpurious critical days, and the tenth, twelfth, &c. will be the critical days, and the patient will have more chance of recovering on theſe days; but in this laſt caſe he will have a leſs chance of the criſis being ſo perfect, or carrying off the diſeaſe.

The only plauſible mode of accounting for theſe critical days, is that which was pointed out by Dr. Cullen, in a clinical lecture he gave about the year 1797; to wit, that continued fevers obſerved in ſome degree the types of intermittents.

He ſaid, that during the firſt week of a continued fever it obſerved the quotidian type; that in the ſecond it obſerved the tertian type, and in the third week the quartan type: that is to ſay, that in the firſt every day's paroxyſm increaſed; by which is to be underſtood, that the third paroxyſm was greater than the ſecond; the ſymptoms of the fourth were more ſevere than thoſe of the third, &c. that in the ſecond week there was a ſtronger exacerbation one day, and leſs ſtrong the next day; that in the third week there was a ſtrong exacerbation on one day, on the two ſubſequent days a weaker exacerbation, and that on the beginning of the fourth day, counting excluſively, a ſtronger exacerbation again took place.

Again, he ſaid, that it often happened in intermitting fevers, that a paroxyſm occurs every day, but that the paroxyſms were unequal: the paroxyſms every other day being ſlighter, every other day more ſevere; or that they might begin at other times of the day.

In other words, ſuppoſing a ſevere paroxyſm, after the intermittent was formed, took place on Sunday at noon, a paroxyſm might take place on Monday, which might be either at noon, at ten or eleven o'clock in the morning, or one or two in the afternoon, but leſs ſevere: and again, that on Tueſday a ſtronger paroxyſm took place at noon, ſimilar to that which took place on Sunday; and that a ſlighter paroxyſm might take place on Wedneſday ſimilar to that which took place on Monday.

Such caſes he called double tertians: they were alſo called double tertians by many of the ancient Greek and Roman phyſicians, and likewiſe by practitioners after the revival of the ſcience of medicine in Europe.

In ſuch caſes, Dr. Cullen obſerved, that the ſevere paroxyſms were ſhorter, and productive of more perfect criſes; if therefore the continued fever ſhould be governed by a tertian type in the ſecond week of the diſeaſe, that then the paroxyſms, or exacerbations, might recur every day, but be more ſtrong every other day, and terminate with a more perfect criſis, they might be ſo ſhort, and terminate with ſuch a perfect criſis; as entirely to carry off the diſeaſe.

In like manner, if a continued fever obſerved a quartan type, and there were two ſlight exacerbations after a ſeverer one, followed by two ſlight exacerbations, and then again a ſeverer exacerbation, and ſo on, there was a greater likelihood of the ſevere exacerbation being the ſhorteſt, and followed by a more perfect criſis, and often by ſo perfect a criſis as to terminate the diſeaſe.

Connecting this idea with what has been ſaid above, a continued fever obſerves the quotidian type in the firſt week. If a criſis takes place after the firſt two or three exacerbations, the diſeaſe recurs, and becomes an intermittent fever. But if it goes on as far as the fifth day, and a criſis ſhould take place on the fifth day of the diſeaſe, that criſis would terminate the fever entirely: the ſame thing may be ſaid of the ſixth day; but theſe two days ſeem to be uncertainly marked as critical days, complete criſes happening on them very rarely.

If the firſt paroxyſm of the tertian type ſhould take place on the ſeventh day, then there would be a chance of a criſis on that day; and in conſequence, on the ninth, eleventh, and thirteenth days.

As far as is known, there is no reaſon for believing that the fever changes its type more frequently on the ſeventh than upon the eighth day; and therefore if the fever changes its type on the eighth day, the eighth, tenth and twelfth would become the critical days in the ſecond week, and according to Hippocrates would be ſpurious critical days. Hippocrates accordingly ſays, that if you find a ſeverer attack take place at the beginning of the ſeventh day, and go off with ſome critical ſymptoms, ſuch as moiſture on the ſkin, greater cleanneſs of the tongue, &c. then you are to conclude that the ſeventh, ninth, eleventh and thirteenth days are the critical days of the ſecond week. If a ſtronger exacerbation ſhould take place on the ſixth or eighth days, followed by critical appearances, as have been above obſerved, then you are to reckon the eighth, tenth, and twelfth the critical days of the ſecond week; and ſo far, according to Hippocrates, the critical days are the days of the ſtronger exacerbations of the tertian type in the ſecond week.

If again the fourteenth day ſhould be the firſt day of the quartan type, then there would be greater diſpoſition to criſis on that day. Indeed the fourteenth day is by much the moſt common day on which a criſis takes place. If the fever was now obſerving a quartan type, the fifteenth and ſixteenth days being days of weaker exacerbations, there would be little chance of criſis upon them; on the ſeventeenth day there would be a ſtronger exacerbation according to the quartan type, and in conſequence a greater diſpoſition to criſis; on the eighteenth and nineteenth days, there being weaker exacerbations according to the quartan type, there would again be leſs chance of criſis upon theſe days; but on the twentieth day, there being a ſtronger exacerbation again, according to the quartan type, there would be greater chance of criſis upon that day. This doctrine will by no means agree for the twenty-firſt day, which it is more probable that Hippocrates, and the phyſicians of his time, reckoned the critical day, inſtead of the twentieth, becauſe it was an odd day, which they conſidered more fortunate than an even day. This whim was probably the ground of their conſidering the ſeventh, ninth days, &c. as being the true critical days, and the eighth, tenth, &c. as ſpurious critical days.

In compliance with this idea, ſome of thoſe authors who have admitted the four-

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teenth as the moſt common critical day, as it has actually been found in practice, have called it an odd day, becauſe it was the ſecond ſeventh, and ſo have perhaps likewiſe admitted the twenty-firſt among the critical days as the third ſeventh.

The truth of this doctrine may alſo be ſupported by what happens in hot and in cold climates.

It has already been ſaid, that criſis much ſeldomer take place in cold climates than in hot climates; and alſo that fevers are much oftener intermittents and remittents in hot than in cold climates: it is much more probable, therefore; that as intermittents are governed by types, that types have a greater power over continued fevers likewiſe in hot climates than in cold ones. This perfectly accords with Dr. Cullen's doctrine.

It has already been ſaid, that not above one third part of the fevers which happen in London are terminated by a criſis; that is to ſay, in not above a third part of the fevers which happen in London, does a much ſtronger attack take place in the evening than took place in the evening of the civil day before, and kill the patient, or otherwiſe terminate with ſo complete a freedom from the diſeaſe before eight o'clock in the morning, as to render him, ſhould there be no relapſe, perfectly ſafe.

In caſes in which no actual criſes take place, ſtill it happens ſometimes, but not always, that there are ſtronger exacerbations every other day in the ſecond week, and every fourth day in the third, in regular fever happening in this country.

By the end of the ſeventh day the fever has often increaſed to nearly its greateſt height, when it is regular. The ſecond week is ſometimes gone through without very diſtreſſing ſymptoms, and ſometimes caſes with ſymptoms of the greateſt diſtreſs and danger occur; and there are all gradations between theſe extremes.

It is neceſſary that the author ſhould here obſerve, that he has been deſcribing the diſeaſe and its progreſs, when it has not been increaſed, or rendered irregular by imprudent practice.

The appearances, then, in the ſecond week are ſometimes frequency of the pulſe, to perhaps an hundred, or an hundred and five, in the evening; and in the morning from ninety-five to an hundred. In many caſes of fever the pulſe is much more frequent, but this will be deſcribed as an irregularity in a future diſſertation.

The tongue is covered with a browniſh fur, which is not ſlimy, excepting when putrefaction takes place, as has already been deſcribed. When the diſeaſe is ſevere, it is not uncommon for the middle of the tongue eſpecially to loſe this fur, and appear, when moiſt, cleaner and rawer than it is in its natural ſtate, and, when dry, with a degree of poliſh, as if it were glazed over.

The eyes have always, provided the fever be regular, a degree of confuſion; but it is greater or leſs as there is more or leſs delirium, as has already been deſcribed. The ſkin is of a dirty duſky colour; this ſymptom is in a greater or leſs degree, according to the violence of the diſeaſe.

The head-ach is often leſs complained of by the patient, but this appears rather to depend upon the confuſion of the mind than on the head's being actually relieved.

The appetite is often totally loſt. The patient frequently complains leſs of thirſt during the ſecond than during the firſt week; but this want of thirſt ſeems rather to be from the confuſion of the mind; for ſometimes, eſpecially when the fever is very violent, he will drink a great quantity at once, and at other times, in the ſame circumſtances, will hardly drink an ounce. The ſkin continues very dry and parched, that is, feels very hot and dry to the byſtander.

The urine continues perfectly tranſparent, as has been deſcribed.

There are flatulencies in the inteſtines, generally with coſtiveneſs; but now and then there are one or two thin and very fœtid evacuations in twenty-four hours, even when there is no other appearance of putrefaction.

The ſleep, when the patient gets any, is more or leſs quiet, partly according to the delirium, and partly according to the general reſtleſsneſs.

If the fever ſhould be ſlight, and perfectly regular; if the practitioner has patience, and does not preſs the patient with improper remedies, nor the by-ſtanders with improper nouriſhment, this ſtage of the diſeaſe paſſes over with tolerable tranquillity. On the other hand, if the delirium, and other ſymptoms of fever, be very violent, it proceeds with the utmoſt anxiety to the practitioner and danger to the patient. This happens in all gradations, from the moſt ſevere and fatal to the ſlighteſt.

Provided there has not been ſuch a depreſſion of ſtrength as to occaſion putrefaction of the fluids, and by that means to deſtroy the patient, and that neither of the kinds of delirium which have been deſcribed ſhould prove fatal; or provided the patient ſhould not be deſtroyed, by ſtrong ſymptoms of fever taking place at the beginning of a critical paroxyſm; and the delirium, if of the firſt ſpecies deſcribed, keeps pace with the other ſymptoms of the firſt ſtage; or provided it be of the ſecond ſpecies, if it begins to be converted into deafneſs and ſtupor: and provided, that the fever was of itſelf perfectly regular, and, laſtly, that it has not been rendered irregular by improper treatment, it rarely happens that it is dangerous after the ſecond week.

On the fifteenth day, and often ſooner, the ſymptoms of the diſeaſe begin to abate. The firſt appearance of this abatement is not uncommonly a cleanneſs and healthy look about the edges of the tongue; or ſometimes the ſkin becomes of a more natural colour; ſometimes, although not very generally, a ſweating takes place all over the body, and the ſkin afterwards continues moiſt. The delirium, if it be of the firſt kind, abates in the day-time, and returns at night; if of the ſecond kind, the patient is deaf and ſtupid, with little difference in the twenty-four hours; and this deafneſs and ſtupor remain until the whole of the diſeaſe has diſappeared.

The depreſſion of ſtrength generally goes off, but leaves real weakneſs behind; this is not in any caſe more conſpicuous, than when the depreſſion has been ſo great as to occaſion putrefaction of the fluids. In this caſe, all the appearances of putrefaction which have been already deſcribed begin to diſappear; that is to ſay, the tongue is no longer covered with ſlime, nor the teeth buried in it, but generally looks raw, if moiſt, and with a poliſhed gloſs on the ſurface when dry; the marbling goes off from the ſkin; or, if there were any purple ſpots, theſe become yellowiſh and diſappear; the breath and ſecretions no longer are fœtid, nor bear any other marks of putrefaction. This diminution of the appearances of putrefaction does not happen at once, excepting a criſis ſhould take place, when they go off almoſt entirely in one night.

It is to be remarked, that in the ſecond week of the diſeaſe it often happens, that an eruption takes place on the ſkin quite different from that marbling, or thoſe purple ſpots, which ariſe from the putrefaction of the fluids. This eruption ſometimes happens even in the firſt week of the fever, but much more commonly in the ſecond week of the diſeaſe. It occurs principally about the neck and breaſt, and reſembles very much the appearance of flea bites; that is, there are a number of ſmall browniſh red ſpecks, often not the twentieth part of an inch in diameter, with a brownneſs of the ſurrounding ſkin. How or why this eruption takes place the author could never ſatisfy himſelf, and perhaps it is of no great importance, ſince the courſe of the fever is not at all altered by it. The fever is neither increaſed nor diminiſhed by its appearance, nor any ways apparently altered; neither is there any increaſe, alteration, or diminution of the fever, upon its going off, which it does commonly in a few days.

There is alſo another kind of eruption, which does not commonly take place before the third week of the diſeaſe, and more frequently when there have been ſymptoms of putrefaction in the firſt and ſecond week. This eruption conſiſts of excreſcences, ſomething like warts, but of leſs diameter, and greater height from the ſkin, of a blackiſh colour, and pretty fine texture. The author has likewiſe not been able to diſcern any cauſe of their taking place, or any conſequence ariſing from them, either in the appearances of the fever itſelf or otherwiſe, to the patient. This eruption is much leſs frequent than the one juſt deſcribed. The eruptions are not nearly ſo numerous, nor are they diſperſed all over the body. Theſe ſeldom appear before the end of the ſecond week. They go off, or rather the excreſcences drop off, about the middle of the third week, without any increaſe or diminution of the diſeaſe.

To return to the abatement of the diſeaſe in the third week: the urine depoſits ſometimes a copious lateritious ſediment for a day or two, and afterwards returns to its natural appearance. Sometimes there is a copious lateritious ſediment in the urine made in the night time, and a mucous one in that made in the day time. The coſtiveneſs goes off, and the fœces return to their ordinary appearance. The eyes, unleſs when the delirium has ended in ſtupor, begin to have a more healthy appearance, are more compoſed, and expreſs a greater attention to the objects around them. All the ſecretions become gradually increaſed, not equally, but ſometimes one more and ſometimes another. The ſleep returns, but not equally, the patient ſometimes paſſing a tolerable, at others a reſtleſs night. There is ſometimes a greater degree of thirſt than was expreſſed in the ſecond week. The appetite returns, although ſeldom regularly; ſometimes it is voracious, but the patient is notwithſtanding ſatisfied with a very ſmall quantity of food; in other caſes it returns very ſlowly. The depreſſion of ſtrength ſometimes goes off almoſt at once, and what is ſingular, leaves the patient with a greater feel of weakneſs. Thus the diſeaſe goes off, and the patient recovers his ſtrength very quickly.

The caſes, in which relapſes take place, will be deſcribed in that diſſertation which will treat of irregular continued fever.

The author comes now to lay before the public the treatment of a regular continued fever.

It has been ſtated, that in the ordinary courſe of a regular continued fever there are two means, by which the patient may get clear of the diſeaſe and recover, without the aid of medicines. One of theſe means is criſis, which terminates the diſeaſe moſt commonly in the ſecond or third week, in leſs than twenty-four hours. The other is, the diſeaſe beginning to diminiſh after the fourteenth day, and going off of itſelf without any marked criſis. If either of theſe means of the diſeaſe terminating, by the efforts which ariſe in its ordinary progreſs, always took place, the practitioner would, in that caſe, have nothing further to do, than to take care that the patient ſhould be ſupplied with proper nouriſhment to ſupport him through the diſeaſe, and prevent any accident which would deſtroy him.

It has alſo been obſerved, that ſometimes depreſſion of ſtrength, ſometimes the attack in the critical paroxyſm, ſometimes the delirium, even when it keeps pace with the other appearances of the diſeaſe, is fatal.

There ariſes, therefore, a queſtion, whether fever is to be left to itſelf, to go through its ordinary courſe, or whether means are to be taken to carry it off, and what theſe means are.

In conſidering this ſubject, it is evident, that if there was any medicine that would certainly carry off the fever immediately, or ſoon after its exhibition, and would act equally and certainly in all fevers, it would be infinitely better to employ ſuch medicine, and immediately relieve the patient from the pain and uncertainty of the diſeaſe, than allow it to purſue its courſe.

It is true that any attempt to carry off fever has been reprobated by many practitioners of great experience. Many practitioners have believed that ſome humour, that is to ſay, ſome noxious fluid, or, to give the doctrine its full ſcope, ſome noxious ſolid or vapour, had, by ſome means, got into, or had been produced in the body; and that fever was only an exertion of the body to deſtroy or evacuate this matter, or convert it to an innoxious or uſeful ſubſtance.

The author never read or heard of any experiments, by which any ſuch noxious matter was proved to exiſt. It appears, indeed, that ſometimes a degree of putrefaction ariſes in the body, but this has been already ſufficiently conſidered.

In the next place, the author has already obſerved, that all fevers produce ſome ſubſtance, which, applied to the body of a man in perfect health, had a tendency to produce, and actually has produced fever in many caſes; but he has alſo endeavoured to ſhew, that this infectious matter has no influence on the fever when it has once been produced.

In practice it is found, that if a perſon, ill of a fever, has that fever terminated, in conſequence of medicines employed, the fever does not return, nor does any other diſeaſe take place.

It is exceedingly difficult to argue on the negative ſide of a queſtion. If a man in any ſcience makes an aſſertion, it behoves him to bring ſome proof of ſuch aſſertion. This has unfortunately been very rarely the caſe; in medicine a man has very often taken his own whim as the truth, without bringing any proof. If there be actually any noxious ſubſtance in the body, why have not thoſe practitioners, who have ſaid there was, pointed out its properties? Is it ſolid; is it fluid; or is it in vapour, in the heat of the human body? Is it red; is it yellow, or is it blue, or any mixture of theſe colours? Is it hard or ſoft? Has it any taſte or ſmell? What is its ſpecific gravity? Have its effects been inveſtigated in mixing or combining it with various other ſubſtances? If thoſe who ſuppoſe ſuch matter to exiſt, have not ſhewn that it can be inveſtigated by any of theſe or other qualities, it is a mere phantom of their own brain.

It has been a common aſſertion, that although you are not able to demonſtrate it by any ſuch quality, yet it cannot be demonſtrated that it is not. As well might they ſay, that the moon can not be demonſtrated not to conſiſt of cream cheeſe.

So far, therefore, in treating a patient in fever, this idea of humour is to be totally neglected.

Since ſo many practitioners of eminence have aſſumed the idea, that there is ſome humour or matter in the body, it may be worth while to enquire into the origin of ſuch belief.

In fever itſelf, there is only one appearance which can give any ſhadow of probability to ſuch a doctrine. This is, if a criſis ſhould happen in a fever, which appears to be a continued one, on the firſt, third, or fourth days of the diſeaſe, it commonly returns and continues as an intermittent. If a criſis ſhould take place ſoon in the beginning of the ſecond week, and not be quite perfect in itſelf, relapſes frequently take place. If a criſis ſhould take place towards the end of the ſecond week, it is ſeldom that the fever returns, although the criſis ſhould not be quite complete. In the third week of the diſeaſe, if any thing like a criſis ſhould make its appearance, the diſeaſe almoſt always goes off.

It has been ſaid, that this depends upon an effort of nature to throw noxious matter out of the ſyſtem. That, at the beginning of the diſeaſe, this matter is not concocted, and that the effort of nature is premature. That therefore the matter remaining, occaſions the fever to return, and to become an intermittent. That when the criſis does not take place till towards the end of the firſt, or beginning of the ſecond week, the matter is more concocted, and therefore nature, by her efforts, throws off a larger quantity, and there is not enough left to occaſion an intermittent, but a ſufficient quantity ſometimes to occaſion a relapſe. That if nature does not make an effort to produce a criſis till towards the end of the ſecond or third week, the matter has been ſo far concocted, that it is in no way longer capable of reproducing the diſeaſe. The author can only conſider all this as a repetition of the ſame facts in other terms.

What is nature? Is it a diſcerning being? If it is, it is very much miſtaken when it tries to throw matter out of the body before it is concocted. Nature indeed is a word ſo vague, and is applied in ſuch ambiguous and various ways, that it is impoſſible it ſhould be underſtood. It is a term under which men are always inclined to hide their ignorance. The author is not diſpoſed to point out the various ways in which it has been uſed; he refers his readers to Lord Bacon; he only means here to endeavour to point out the meaning, as far as he can judge, in which it has been taken by thoſe, who have ſaid that ſhe endeavours to produce a criſis in fever before matter is concocted.

A man is born with few or no ideas; whether with any or no is a propoſition the author does not mean to argue. When he comes into the world, his eyes open, objects form pictures on the retina, and by degrees impreſs ideas on the mind. It has been ſaid, that nature produced theſe ideas; in that caſe, it would undoubtedly be perfectly ſuperfluous that pictures ſhould be painted on the retina. The ſame thing may be ſaid of all the other impreſſions made on the other organs of the ſenſes. A man, when he is born, has his teeth formed in his jaw-bone. If after the proper time of his receiving nouriſhment by ſucking the breaſt of his mother, the teeth riſe up, and cut through the gum, it has been ſaid that nature made his teeth riſe up, when it is neceſſary to cut through ſolid food. It is undoubtedly the Almighty, who cannot err, that made this contrivance, and not nature, a ſecondary, fallible, and imaginary being.

In like manner, in inflammation a quantity of fluid is extravaſated into the cavity or cavities of the inflamed part; this matter, ſo extravaſated, is converted into pus, deſtroys the part originally inflamed, makes its way externally, and is evacuated out of the ſyſtem, leaving a cavity, which is afterwards filled up by granulating fleſh; a freſh ſkin is formed over this, and the granulating fleſh is converted into parts ſimilar to thoſe which were deſtroyed. This ſurely was a contrivance of that Being, who in his infinite wiſdom created all things. Why ſhould we transfer it to a ſecondary imaginary being?

So in fever, the author has endeavoured to ſhew, that when the attack of fever takes place, it is followed by a hot fit; that the operations of the body which take place in the hot fit, have a tendency to carry off the he derangement which had taken place in he cold fit. So it has pleaſed the Almighty to give powers to the human body capable of producing a criſis which carries off the diſeaſe. Why ſhould there here be ntroduced ſuch an imaginary being as nature, to make blunders, not knowing when ſome other imaginary ſubſtance has ſuffered an imaginary change? Is it not much eaſier comprehended, that the body is ſo conſtructed, that in all paroxyſms of fever an effort is produced to carry off the diſeaſe, although that effort does not always ſucceed?

Nor do other efforts always ſucceed that the Almighty has pleaſed to give to animated beings. All ſeeds of plants attempt to grow; not one in a million ſucceeds. A ſingle cod fiſh lays three thouſand eggs in a year; not three of theſe produce cod fiſh which arrive at maturity.

It is not therefore ſingular, although the Almighty has choſen ſo to form the human body, that every attack of fever ſhould produce a hot fit, in which operations of the body ariſe which tend to carry off the diſeaſe, that theſe operations do not always ſucceed. Is it then neceſſary to have any reference to a ſecondary and imaginary being, who may make a blunder, and try to carry off matter before it is prepared for it?

The fact is, that a fever begins gradually, increaſes to a certain point, continues in that degree for a certain time; afterwards, if the patient is not killed in the manner already mentioned, or cured by a complete criſis, it gradually diminiſhes, and goes off without any cauſe which has as yet been diſcovered.

To return to the conſideration, whether a fever ſhould be left to itſelf, without the practitioner employing any means to carry off the diſeaſe, but only attend to the patient during the progreſs of it; or whether he ought to employ any remedy to attempt to carry it off, either by producing a perfect criſis, or by carrying off the diſeaſe, without any attention to the natural criſis by which it is frequently cured.

The firſt thing which influences the practice is, what remedies have been found out, by which a perfect criſis may be produced, or the diſeaſe be carried off, without any attention to the natural progreſs or cure of it. The firſt thing that is of moment in attending to this propoſition, is the efficacy of ſuch medicines as have been employed for the purpoſe of ſhortening the duration of fever, without having any attention to what happens in its ordinary courſe. Whether actually more fevers have been cured, and the patient has perfectly recovered when ſuch medicines have been employed, or when the fever has gone through its ordinary courſe.

This queſtion is exceedingly difficult to determine, from the very great inaccuracy of the evidence of medicine; an inaccuracy ſo great, that the author has no means of determining the queſtion. It is true that, beſides his private practice, he has been

phyſician

phyſician to an hoſpital, which receives nearly four thouſand patients in a year, for upwards of twenty-five years; and in which hoſpital fevers are diſeaſes which patients labouring under are always admitted in preference. There is almoſt always, alſo, febrile infection, which frequently produces fevers in this hoſpital, notwithſtanding the utmoſt precaution to keep it clean and well aired. He therefore might be ſuppoſed to poſſeſs ſufficient evidence, whether a regular continued fever more frequently terminates in patients being reſtored to health, when they are left entirely to themſelves, excepting for the attendance given them, their receiving proper nouriſhment, and other attentions during the progreſs of the diſeaſe; or whether a greater number recover, when means are employed to ſhorten the diſeaſe. It muſt be obſerved, however, that thoſe people brought into the hoſpital already afflicted with fever, have had that fever diſturbed, by remedies employed before the patients are received into the hoſpital. This cannot generally be found out. Theſe fevers are beſides rendered irregular by the motion and fatigue of bringing them into the hoſpital. Thoſe who catch the fever in the hoſpital are often ill of other diſeaſes, the ſymptoms of which diſeaſes are ſo intermingled with the fever, as to render it perfectly irregular. From theſe cauſes the author has not been able to diſcriminate, with any degree of certainty, what number of patients would recover, ſuppoſing they were taken ill of a regular continued fever, and ſuppoſing it was to purſue its ordinary courſe without the aſſiſtance of medicine.

In the ſecond place, the practice of medicine is ſo unfortunately conſtituted in this country, that when a perſon is taken ill of any diſeaſe, he generally does whatever the firſt violent man he meets with tells him is proper to be done. Or he applies to mercenary practitioners, whoſe real buſineſs it is to mix medicines according to the preſcriptions of phyſicians who are ſuppoſed to have ſtudied the art, without thoſe practitioners being able to diſtinguiſh whether the caſes are the ſame. Suppoſing, therefore, that phyſicians were even very perfect in the knowledge of fever, the diſeaſe is commonly totally deranged before it comes under their inſpection. If they were to endeavour to lay down the evidences by which it might be determined, whether a regular continued fever, in purſuing its ordinary courſe, would more frequently terminate in health, ſuppoſing it was left to itſelf, the practitioner attending only to giving the patient proper food, and taking care that thoſe other things, which are called non-naturals, to wit, ſleep, ſecretions, &c. be properly adminiſtered; or whether he would more frequently recover when medicines were adminiſtered, it would be hardly poſſible, without ſuch a formula, as the author has already pointed out, in the *Medical and Chirurgical Tranſactions*, to determine the queſtion with any degree of accuracy.

It is further to be lamented, that where this difficulty does not take place, as it certainly does not in ſeveral parts of Europe, where the practice falls entirely into the hands of phyſicians, no ſets of comparative caſes have been recorded. Theſe phyſicians have not pointed out whether the diſeaſe, in purſuing its own ordinary courſe, thoſe things which have commonly been called non-naturals having been only attended to, has oftener terminated in health, than in ſuch caſes where medicines have been employed to carry off the diſeaſe. Phyſicians have been too often more anxious to recommend ſome favourite practice or medicine, than, diveſting themſelves of all prejudice, to endeavour to render medicine as certain a ſcience as it will admit of.

Such being the ſituation of the ſubject, how can the author determine whether, ſuppoſing fever was perfectly regular, it would be better to let the diſeaſe go through its whole courſe, or endeavour to carry it off by medicine. It is therefore left to him to ſhew how to conduct the patient through the diſeaſe, ſuppoſing the fever perfectly regular in itſelf, and that nothing has as yet been diſcovered, which will carry off the diſeaſe at once, and in the ſecond place, to conſider what are the powers of the medicines, which have been ſuppoſed to produce a criſis ſimilar to that which takes place in the ordinary courſe of a continued fever, as has already been deſcribed; or carries off the diſeaſe, altogether diſſimilar to thoſe which put an end to it in its ordinary courſe.

The firſt argument, therefore, to be purſued, is, what attentions are to be paid, ſuppoſing we are to do nothing that ſhall prevent the fever from going through its ordinary courſe.

The firſt attention to be paid is to the ſituation of the patient. Man evidently was originally an inhabitant of a warm climate only. In ſuch a climate, he wants no more covering to defend him from the inclemency of the atmoſphere, than what he was born with, or afterwards grows upon him. He was probably driven into colder climes by war, and in colder climes he began to have more vigour; ſtill, however, it was neceſſary for him, even in perfect health, to defend himſelf by external cloathing, and, when without exerciſe, to give heat to the atmoſphere, by various means which he had invented, particularly by the burning of fuel.

A man affected with fever has the powers of his ſyſtem depreſſed, and therefore cannot defend himſelf againſt the cold of the atmoſphere. Beſides, a degree of cold greater than a man has been accuſtomed to contracts all the external veſſels, and therefore prevents that relaxation which ought to take place in the criſis, and of conſequence tends to prevent a criſis from taking place. It alſo tends to render the diminution of the diſeaſe in the morning leſs conſiderable. On theſe accounts, a man in a fever ſhould not be ſuffered to remain in too cold an atmoſphere, or any other medium of too ſmall a degree of heat.

The heat of the ſurrounding bodies has a different effect on the human body, according to the degree of heat it is accuſtomed to bear. If a man is accuſtomed to live in a heat of ninety degrees of Fahrenheit's thermometer, he will feel ſurrounding bodies, heated to ſeventy degrees, extremely cold; he will feel them as cold as a man, accuſtomed to live in ſeventy degrees of heat, will feel a medium that he is in, if it be of ſixty degrees; therefore, in defining the heat in which a man ſhould be kept in a fever, reference muſt be had to the country he is in. In London, in the ſummer, an atmoſphere, heated to ſixty-five degrees, will not do miſchief from being too cold. In winter, an atmoſphere heated to fifty-five degrees, will not be noxious from its cold. In other climates different rules will take place; what theſe rules are, the author cannot accurately lay down. He conjectures, however, from what information he can procure, that in the warmeſt climates eighty degrees would not be noxious, from its cold in the atmoſphere, and that in the coldeſt climate leſs than fifty degrees would be hurtful.

There is a great difference, however, in the degree of heat which the atmoſphere ſhould have, and the degree of heat of which the ſubſtances immediately ſurrounding the body ought to be.

The atmoſphere is often only applied to the face, and drawn into the lungs, eſpecially when a man is in bed. The face has been accuſtomed to various changes in the atmoſphere, and whatever part has been accuſtomed to ſuch changes is much leſs affected by them. With reſpect to the lungs, the atmoſphere is tempered in its paſſage through the noſtrils, mouth and throat, larynx, and the beginning of the trachea, ſo that it cannot go ſo cold into the lungs as to affect them much from its temperature. Moreover, there is in the atmoſphere about a fourth part of a vapour, which we call pure air, which is neceſſary to be applied ſo as to affect the blood in the lungs, to give the neceſſary vigour to the ſyſtem. As in a fever there is a greater depreſſion of ſtrength, it certainly ought not be otherwiſe depreſſed, from a ſufficient quantity of pure air not being thrown into them. As the warmer the air of the atmoſphere is, it will be more rarefied, therefore a leſs quantity of pure air will be contained in the ſame volume when the atmoſphere is warm; a little greater degree of coldneſs of the atmoſphere thrown into the lungs will be counterbalanced by a greater quantity of pure air giving vigour to the ſyſtem. On theſe accounts, the atmoſphere in which the patient is may be colder than the bodies which immediately ſurround him.

With regard to the bodies which immediately ſurround him, their heat ſhould be much ſuperior to the heat of the atmoſphere, in order that they may not do miſchief, by producing contraction, thereby increaſing the fever, and preventing relaxation and criſis from taking place. In this country, the heat of bodies immediately ſurrounding the patient ſhould never be leſs than ſeventy-five in winter, or eighty degrees in ſummer.

The next thing to be attended to is, how this temperature of the atmoſphere, and likewiſe the temperature of the bodies immediately ſurrounding the patient, are to be kept up.

In the firſt place, if the atmoſphere be of too cold a temperature, its heat ought to be increaſed by ſome means which will not diminiſh the proportion of pure air in it, nor introduce into it any noxious vapour, or any noxious fluid, or ſolid, floating in it in ſmall particles.

According to the means which men have of procuring conveniencies, either in ſickneſs or in health, different meaſures ought to be, and where the means are not ſufficient muſt be purſued, according to what can be afforded.

If a man has ſufficient means, the beſt mode of warming the atmoſphere is, to allow the air to enter into veſſels ſurrounded by boiling water; afterwards to paſs into veſſels cooled by any means to at leaſt ſixty degrees of Fahrenheit's thermometer, there being in theſe veſſels a means of allowing any water condenſed to paſs off, without any communication between the vapour contained and the vapour of the external atmoſphere. The air ſhould then paſs from theſe veſſels into another ſet of veſſels, ſurrounded by boiling water; and from theſe the air, ſo heated, ſhould enter into the bed-chamber of the patient, ſo as to keep its heat up to the degree which has been pointed out. The advantage of this apparatus is, that all the water which was ſuſpended in the air of the external atmoſphere will be diſſolved in it, when it is drawn into the veſſels ſurrounded by the boiling water, as hot air diſſolves a much greater quantity of water than cold air. When the air is carried from the veſſels ſurrounded by boiling water into the veſſels cooled to ſixty degrees or under, the ſides of theſe veſſels will cool the air next to them, and precipitate the water diſſolved in it as the air paſſes along, and all of it ſucceſſively comes in contact with the ſides of the cold veſſels. All the water which cannot be diſſolved in the air in the heat of ſixty degrees, or whatever leſs degree of heat is applied, will be precipitated, and carry along with it all other noxious ſolid, or fluid particles, which will paſs off along with the water in the apparatus applied for that purpoſe; and thus the air will be left pure. The air warmed by the ſecond ſet of veſſels ſurrounded by the boiling water, may be let into the bed-chamber of the patient, in ſuch quantity as to give the proper degree of heat.

Such would be the moſt perfect means of warming the chamber of a patient afflicted with fever. It is in the next place neceſſary for the author to ſtate, how, when ſuch means are not in readineſs, heat may be produced in a proper degree.

The firſt thing to be attended to is, that the mode of producing heat ſhall not diminiſh the proportion of pure air in the atmoſphere, nor introduce any noxious vapour, or any noxious fluid, or ſolid particles floating in the atmoſphere. Therefore no fuel, for the burning of fuel is the common mode of producing heat, ſhould be burnt in the room, without all the vapours ariſing from it being entirely carried off. For beſides that the burning of fuel deſtroys a quantity of pure air, and renders it totally unfit for reſpiration, and therefore would oblige the patient, whoſe ſtrength is already too much depreſſed, to make deeper or more frequent reſpirations, ſo that his ſtrength would be further exhauſted; there are alſo very often noxious ſubſtances, vapours, or ſmall particles of ſolids or fluids, produced by the burning of fuel. If there be, for example, pyrites or arſenical ores in the fuel, volatile vitriolic acid, calx of arſenick, and other noxious matters, will be mixed with the atmoſphere which the patient breathes. From this conſideration, the rooms in which the patient afflicted with fever is, ſhould never be heated by fuel burnt in a chafing-diſh or braſier, or any other contrivance by which the whole of the vapour ariſing from the burning fuel is not entirely carried off.

Moreover, if the fuel be burned in a ſtove or furnace in the middle of the room, or any where where the vapour ariſing from ſuch metallic ſubſtances is not entirely carried off, two miſchiefs will ariſe. In the firſt place, a calcination of the metal will deſtroy the pure air, and leave the atmoſphere, which the patient is to breathe, with a leſs proportion of it; by conſequence, will render it neceſſary for the patient to make more frequent and fuller reſpirations, in order to take the ſame quantity of pure air into his lungs; it is therefore neceſſary that no ſuch apparatus be uſed. In the ſecond place, it often happens that noxious vapours ariſe from metallic ſtoves, in which fuel is burnt, which are pernicious. If, however, a ſtove or furnace, containing the burning fuel, is conſtructed of porcelain, or any other ſubſtance not altered by heat, neither of theſe cauſes of miſchief will ariſe. If the outſide of any ſuch ſtove was to be heated to a much greater degree than that of boiling water, then indeed the particles of animal and vegetable matter, which often float about the room, falling upon the ſurface of a ſtove, would be rendered empyreumatic; would burn, and ſo contaminate the air as to render it noxious when reſpired. The author does not otherwiſe ſee any objection to heating the air of the bed-chamber when neceſſary, by a ſtove or furnace, not apt to be at all decompoſed or altered by heat, if the heat of the external ſurface of ſuch ſtove or furnace is always kept under the heat of boiling water.

If the chamber be kept heated by fuel burning in a grate, or open fire-place, where all the air ſerving for the burning of the fuel, together with all the vapour ariſing from the burning fuel itſelf, is carried off by a chimney; there certainly can no objection ariſe from the diminution of pure air in the atmoſphere, or from noxious matters thrown into it. The only queſtion with regard to the heat produced in this way is, whether it be diffuſed perfectly equally all over the chamber of the patient, or at leaſt over that part of it in which the patient is. If it be ſo equally diffuſed, no miſchief can ariſe; but if cold air ſhould be drawn into the room, in ſuch manner as to paſs over the patient, then indeed this mode of heating the room would have all the bad effects that have been above enumerated, as ariſing from the patient being expoſed to too cold an atmoſphere. Attention ſhould therefore be paid, in this caſe, that no ſtream of cold air be allowed to paſs over the patient.

Theſe are the means which have been practiſed to heat the atmoſphere ſurrounding the patient by burning fuel. The author is not acquainted with any means of generating heat in the patient's bed-chamber preferable to burning fuel.

The next means of keeping the patient in a proper degree of heat, are the modes of heating the ſubſtances immediately ſurrounding the body, as well as the air of the atmoſphere. For this purpoſe, it is much better that a patient ſhould be kept in bed, where the heat is more equally diffuſed all over his body, than when he is in the ordinary cloathing he wears when out of bed. There are other more cogent reaſons for keeping him in bed in fever, which will be afterwards enumerated. Suppoſing, then, that a patient ſhould be ſeized with fever, and that he is immediately to be put to bed; if the bed itſelf is not perfectly dry, it ſhould be dried and heated before a large fire, and clean ſheets are to be laid upon it, which are alſo to be properly warmed, as are the other coverings. The bed ſhould by no means be heated by any hot ſubſtance, ſuch as a warming-pan, which, if there be any moiſture about the bed or bed-cloaths, raiſes that moiſture, which does a great deal of miſchief to the patient, as will afterwards be explained.

After the patient is in bed, the heat of the bed-cloaths, or ſubſtances immediately ſurrounding him, can only be kept up by the heat generated by the patient himſelf. All that can be further done, if it be neceſſary from the heat of the external atmoſphere to warm them, is, that they ſhould be kept warmer, by forming them of ſubſtances which communicate heat with difficulty, and therefore confine the heat generated by the patient. It is likewiſe neceſſary that the ſtrength of the patient ſhould not be exhauſted by exertion. In the firſt place, the bed which is under the patient ſhould be of ſoft feathers, which were better looſely quilted, that they may be firm enough to give ſupport without giving way, and at the ſame time ſufficiently looſe to be very bad conductors of heat.

The author muſt here remark, that he is giving the beſt directions, as far as his judgment goes, knowing at the ſame time that they cannot be always perfectly complied with. Yet it is neceſſary that the beſt ſhould be known, ſo that they may be come as near to as poſſible. Some have thought that the bed had better be a mattraſs, formed of wool or hair, firmly quilted. This the author conceives to be part of that ſuperſtition, which inclines men in health to believe, that it is a meritorious act to give themſelves pain.

In fever, the body ſhould certainly be ſupported by ſubſtances, which make its own weight leſs diſagreeable to the patient. Although this obſervation belongs to another attention during fever, what is now treated of being only the heat ſurrounding ſubſtances. Under the circumſtances at preſent under conſideration, the heat is not to be loſt by the patient's being laid upon good conductors of it. Upon theſe general principles the following directions are laid down. The covering over the patient ought to add to the quality of not conducting heat readily, that of being of very little weight. The immediate covering of the patient ſhould be cotton cloth; that is, his ſhirt and ſheets, as being leſs apt to conduct heat than linen. The author mentions, in the firſt inſtance, that which is the beſt without regard to expence. Therefore, an eider down covering, quilted in ſome thin material, is the beſt. Nevertheleſs, although certainly preſſure of bed-cloaths ought to be avoided, as ſupporting that preſſure is an exertion of the powers of the body, there is ſomething in the habit of bearing preſſure greater than ſuch ſlight covering, which the author is not ſure might not counteract the convenience of its lightneſs. At any rate the covering which goes over the ſheets ſhould be, where it can be had, of the neweſt and lighteſt woollen cloths, ſuch as are called blankets; for the wool of animals is ſo conſtructed, as, upon being preſſed together frequently, to weave itſelf into a thick and heavy ſubſtance, called felt, which would by no means be a proper covering for a patient affected with fever.

All kinds of cloaths, when moiſtened with any watery fluid, become much better conductors of heat than when they are perfectly dry. For this reaſon, if, from the exudations from the patient himſelf, or in any other way, they ſhould become moiſt, they ought to be removed, and freſh and dry coverings be ſubſtituted in their room. Another reaſon for removing any of the coverings of the patient when moiſt is, that the evaporation of the moiſture produces cold, and that cold is apt to be tranſmitted to the patient, and to produce the miſchief which has already been ſaid to ariſe from his body's being expoſed to too great a degree of cold. The cold thus produced is alſo apt to act more forceably upon particular parts of the body, which have not uſually been accuſtomed to expoſure to cold, and therefore is much more hurtful.

Hitherto means have been propoſed to prevent the patient's being too much expoſed to cold, either of the air of the atmoſphere, or of the ſolid ſubſtances ſurrounding him. The next thing to be taken notice of is, how to avoid too great a degree of heat, either in the atmoſphere, or of the ſolid ſubſtances ſurrounding the patient. This indeed is a matter of much greater difficulty to give directions about, and eſpecially to the author, who has always practiſed in temperate and cold countries, particularly as few or no attempts have been made in warmer climates to give coolneſs to the atmoſphere, and ſubſtances ſurrounding the patient. He can therefore only conjecture by what means this object may be obtained.

In the climate of England, the atmoſphere is ſometimes heated to a greater degree than is convenient in fevers, as has already been ſhewn. The only way of cooling it that can at all be put in practice is, by the evaporation of watery fluids, which may be produced by ſprinkling water upon the floor, and other parts of the bed-chamber of the patient. But then there is danger of the evaporation producing at times too great a degree of cold, or partial cold; the effects of this are ſomewhat obviated by uſing, inſtead of pure water, water impregnated with eſſential oil of aromatic plants. The author, however, has not much dependence on this, although it feels very refreſhing to the patient.

Whenever the patient is in a climate, whoſe heat is leſs than ninety-ſeven degrees of Fahrenheit's thermometer, which is nearly the heat of the body of the patient, removing the air which is in immediate contact, by means of putting the atmoſphere in motion by any kind of fan, renders that which is in immediate contact with the body much colder than it would orherwiſe be. Such means, in caſe of too warm an atmoſphere, ſeem to be very proper to be employed.

It is a queſtion, whether expoſure to a ſtream of air colder than the heat of the human body would be ſafe. Certainly if that ſtream of air contains moiſture it would do miſchief, in conſequence of the particles of water, which were before ſuſpended in the air, being diſſolved in it by the ſuperior heat of the body itſelf, and thus producing cold in too great a degree. If the air paſſing over the patient, under theſe circumſtances, had no water ſuſpended in it, in this caſe, the author does not apprehend any miſchief, excepting there was moiſture immediately covering the ſkin, which being diſſolved in ſuch dry air, might produce too great a degree of cold.

The ſolid ſubſtances covering the patient, in caſe of his being in too warm an atmoſphere, ought to be thin; but ſtill, however, bad conductors of heat, ſuch as cotton wove thin; for if theſe ſhould happen to get moiſt, if they were good conductors of heat, the cold generated by the ſolution of ſuch moiſture in the air, being immediately applied to the patient, might do a great deal of miſchief, as has already been explained.

In fever, a patient ſhould avoid all extraordinary exertions; he ſhould be placed, therefore, in a horizontal poſition, or as nearly ſo as he is accuſtomed to when in health; in this poſition he is ſupported every where by the bed, and is not obliged to exert any of his muſcles, as he is when in an upright poſture, to keep the parts in equilibrium. At the ſame time, great care ſhould be taken, that his mind be kept free from all exertions whatever, and eſpecially all ſuch as produce any anxiety.

In regular continued fever, when ſevere, the patient is not able to judge of any thing truly; the mind cannot arrange the arguments on each ſide of a queſtion, ſo as to draw from them any perfect concluſion, much leſs can it form a rule for any action; nor, when it has formed an opinion of what is to be done, can it imagine the mode in which the effect is to be produced. No advantage can, therefore, be gained, by exciting his attention to his affairs; the force of the ſyſtem is only exhauſted by fruitleſs attempts. If a regular continued fever ſhould be leſs violent in its beginning, although a man might attend to his affairs with ſome effect, yet any advantage gained by ſuch attention would be much overbalanced by exerting the force of the ſyſtem. As ſoon, therefore, as a patient is ſeized with a febrile attack, he ſhould immediately be put to bed, and left under the care of one attendant only, and every thing that can call into action the operations of the mind is to be avoided.

It might be conceived, that the practitioner who was called in to attend the patient, need not be warned to avoid exciting anxiety in the mind of the patient about his diſeaſe; it is neceſſary, however, as there are many practitioners, who, from inattention, make the diſeaſe the ſubject of their converſation in the hearing of the patient.

It has even been affirmed, by thoſe who wiſh to vilify medicine, that there are practitioners who, out of a point of vanity, talk learnedly to the patient about his diſeaſe; and that there are ſome who have even wiſhed, by alarming the patient, to fix the diſeaſe, and prevent it from being carried off. That this is true the author can hardly believe; he only intends to warn all practitioners not to diſturb the mind of a patient; indeed at any time in diſeaſe, but more particularly in fever.

The patient being laid in bed, in nearly an horizontal poſture, with a proper degree of heat and covering, the next thing to be attended to is, the quality of the atmoſphere which he breathes, and which ſurrounds him.

It is neceſſary, as has already been obſerved, that a man ſhould take into his lungs a certain quantity of a vapour, called pure air, which has a certain effect on the ſyſtem neceſſary for life. This vapour does not ſenſibly affect the matter of the body, excepting that it adds yellow to the red particles of the blood, which is ſo altered in the the circulation through the body, that it muſt paſs through the lungs, and from them again into the other parts of the body, in order that a man ſhould exiſt. This vapour makes about a fourth part of the atmoſphere. The whole atmoſphere is ſo mixed together, by the currents which are conſtantly taking place in it, that pure air is found nearly in equal proportions in almoſt all ſituations where the atmoſphere does not ſtagnate; in a room in a private houſe, or in the ward of an hoſpital in the centre of ſuch a city as London; in a cultivated or uncultivated country, over the ſea, or in any ſituation where currents of the atmoſphere are conſtantly taking place. In order, therefore, to keep up the due proportion of pure air in the bed-chamber of a patient, it is only neceſſary that the air ſhould not ſtagnate.

The next thing to be conſidered is, whether a different proportion of pure air would be better adapted to the reſpiration of a patient in a fever, than that proportion which is found commonly in the atmoſphere.

It is but lately that the proportion of pure air to the other vapours contained in the atmoſphere has been found out; it having been long known, however, that there were various other vapours mixed with it in the atmoſphere.

Whenever any new and ſeemingly important fact has been diſcovered, and eſpecially if it cannot immediately be applied to any advantageous purpoſe in mechanical or chemical arts, mankind in general, and very often even practitioners in medicine, conceive it muſt be applicable to ſome medicinal purpoſe. Juſt as an infant, allured by any thing which glitters in its eye, applies it to its mouth, ſuppoſing it muſt be likewiſe exquiſite food; ſo infants in medicine are dazzledwith any ſurpriſing diſcovery, and immediately employ it for the cure of diſeaſes, not conſidering how extremely difficult an art medicine is; how fallacious experiments made in it often are, as has been obſerved long ago by Hippocrates, and by what ſlow degrees valuable medicines have had their powers inveſtigated ; how long it was before the effects of the bark of the cinchona, of mercury, of antimony, were brought to light, as far as they are already known.

The author, therefore, conceives, that in fever it certainly is not at all known, whether the fever will go through its ordinary courſe better or worſe for the patient's breathing an atmoſphere having a larger or leſs proportion of pure air. The other vapours which conſtitute the remaining three-fourths of the atmoſphere, may ſome of them be noxious, and others of them may be breathed along with the proper proportion of pure air, without any detriment.

As the vapours which conſtitute the atmoſphere are extremely viſcid, they ſuſpend innumerable fine particles of various ſolids, and alſo innumerable drops of fluids, which are principally water, the effects of which laſt have already been attended to. Many ſuch ſubſtances may be very noxious and very improper for the patient to breathe in health, and ſtill more noxious in diſeaſe. That they are very noxious in many diſeaſes is eaſily ſeen from what happens in hoſpitals, in almoſt all kinds of wounds and ulcers, inflammations and ſuppurations, in all affections of any of the parts employed in reſpiration. In all theſe diſeaſes the patients in hoſpitals recover much more ſeldom than in the air even of London, a town at leaſt ſeven miles long and three in breadth; and in ſuch a town theſe diſeaſes go on much worſe than they do in the country at the diſtance of ten miles from it.

What are the noxious particles, or vapours, mixed with the atmoſphere, which render it ſo hurtful in theſe diſeaſes, has not been inveſtigated. The breath ariſing from the lungs of animals, the vapours which ariſe from their bodies, the vapour ariſing from the immenſe quantity of matter which is conſtantly putrefying, the vapour which has ſerved for the inflammation of fuel, &c. are all improper for reſpiration. The particles of ſoot, aſhes, horſe-dung, gravel, and a vaſt variety of other bodies, floating in the air of a large town, render it undoubtedly improper for reſpiration; but which of all theſe ſmall particles, vapours, fluids, or ſolids, are hurtful in the diſeaſes which have been enumerated, has by no means been inveſtigated by experiment, the only means of inveſtigation which can in the leaſt be depended upon.

However noxious theſe vapours, which ordinarily contaminate the atmoſphere of an hoſpital, or large town, are in the diſeaſes which have been enumerated, they do not ſeem to have very bad effects in a regular continued fever. A patient, in a regular continued fever, goes through its courſe under exactly the ſame treatment, as ſafely in St. Thomas's hoſpital as he does in the country, or in an air in which no noxious particles are known to exiſt. It is undoubtedly true, that vapour ariſing from putrid ſubſtances depreſſes the ſtrength, and in ſo far muſt be noxious in fever; but when care is taken to avoid ſuch putrefaction, and by a proper circulation to keep a due proportion of pure air; infectious vapour, and moſt other noxious ſubſtances, do not ſeem, from experience, to have much effect in regular continued fever.

Two things muſt be obſerved, therefore, in regulating the air of the room in which the patient is confined in ſuch a fever. Firſt, that there ſhall be ſuch a circulation of the air, or, in other words, ſuch a quantity of air ſhall enter the room and paſs out of it, as is ſufficient to keep up the proper proportion of pure air. This muſt be done in ſuch a manner, as that the freſh air paſſing in ſhall not flow in a ſtream over the bed of the patient, leſt it do miſchief by its temperature. Secondly, it is neceſſary that the air ſhall not be contaminated by putreſcent matters. It is much better then that the food, and whatever elſe is neceſſary for the patient, ſhould be prepared in an adjacent chamber to that in which he lies, and only the attendant upon the patient ſhould be ſuffered to remain in his room.

A regular continued fever, if it be left to purſue its own courſe, continues, as has already been ſaid, for between two and three weeks, if the patient is not loſt or if no criſis takes place. A man cannot live for ſo long a time without ſome nouriſhment; it is therefore neceſſary, in the next place, to enquire what food and drink ſhould be employed during the progreſs of the diſeaſe.

In the firſt place it is to be obſerved, that in a regular continued fever there is no time in which the patient is free from the diſeaſe, as there is in a regular tertian; thoſe rules, therefore, which have been laid down as proper to be followed in a regular tertian, are by no means applicable in a regular continued fever.

In a regular continued fever no principal meal can ever be employed, as the organs of digeſtion are always too much deranged to be capable of converting into chyle and blood a large quantity of food of any kind. On the other hand, there is this great difficulty in the ordinary ſtate of the body in health, that in man, any interruption to the proceſs of digeſtion, ariſing from freſh matter being thrown into the ſtomach, always interrupts the proceſs, ſo as to render it much more imperfect, and often induces diſorder of the whole ſyſtem. This is not the caſe in all animals; a horſe is conſtantly throwing in freſh matter, and the proceſſes are going on notwithſtanding very perfectly.

A man is often ſo far deranged in fever, as to render it in many things neceſſary to deviate from his ordinary modes of life in health. In a regular continued fever, for inſtance, the food cannot be thrown into the ſtomach in great quantity at once, without greatly diſordering the whole ſyſtem, increaſing the diſeaſe, and rendering it irregular; ſmall quantities only of food muſt, therefore, be thrown in at a time, and that muſt be often repeated.

In a regular continued fever, be it ever ſo ſlight, no ſolid animal food ought ever to be employed, whether quadrupeds, birds, reptiles, or inſects. Solid animal food, in a regular continued fever, during its digeſtion, greatly increaſes the heat to the feel of the patient, ſtill more to the feel of the by-ſtander, and frequently, though not always, to the thermometer. It produces great reſtleſsneſs and ſenſe of uneaſineſs, and an increaſe of depreſſion of ſtrength in the patient, during the time that it remains in the ſtomach and inteſtines. It totally deranges the fever. It often produces the appearance of a freſh paroxyſm. If it be made uſe of about noon, or before the next evening exacerbation, this is almoſt always rendered more violent. It is true, indeed, that if an error be committed, and ſolid animal food be employed, after it has paſſed through the inteſtinal canals, the ſyſtem generally recovers itſelf, the patient only being weakened by the extraordinary exertion, and rendered leſs able to ſupport himſelf during the remainder of the diſeaſe. If the ſame kind of food be perſiſted in, it increaſes the evening exacerbations extremely, brings on delirium much faſter, and in a much greater degree than it would otherwiſe ariſe, and prevents the fever from being worn out by its own progreſs, as it otherwiſe would be. All ſolid animal food is therefore in every caſe to be rejected throughout the whole progreſs of the diſeaſe.

Even after the diſeaſe has been terminated by a criſis, animal food, in a ſolid ſtate, ſhould be rejected, there being no cauſe which has produced relapſes, as far as the author's obſervation has gone, ſo frequently as uſing ſolid animal food too ſoon. Suppoſing even a complete criſis ſhould have taken place, and entirely terminated the diſeaſe, it ought to be at leaſt five or ſix days before any ſolid animal food is ventured upon.

The author wiſhes to preſs this more ſtrongly; becauſe if a perfect criſis ſhould take place, the appetite often returns, and the patient is left in a very weak ſtate. It has, in this caſe, been often conceived by the patient, and much more frequently by the byſtanders, that ſolid animal food would reſtore his ſtrength ſoon. It muſt, however, be remembered, that when a complete criſis takes place, and carries off the fever entirely, the depreſſion of ſtrength, which was a ſymptom of the fever, ceaſes, and the weakneſs, which was produced by the exertions and derangement of all the faculties in the ſyſtem, is no longer increaſing, and that the patient, with very moderate nouriſhment, and the ſleep and reſt which are ſo apt to enſue after the fever has been completely carried off, will have his ſtrength reſtored in a very ſhort time, without uſing any thing that ſhall run any riſk of re-producing the diſeaſe.

The ſame objections ariſe againſt the uſe of ſuch animal fluids as are coagulated by the coagulating juice of the ſtomach; ſuch as ſerum, eggs, and other fluids of the ſame kind. Theſe become ſolid as ſoon as they are thrown into the ſtomach, and have the ſame effects in diſturbing the whole ſyſtem, during their digeſtion, as have been juſt enumerated to be produced by ſolid animal food. Milk is a fluid of this kind, being coagulated by the coagulating juice of the ſtomach as ſoon as thrown into it.

We find, that it has been reprobated by Hippocrates, and many other practitioners. This ſubject, however, will be conſidered more fully hereafter.

All ſuch vegetable ſubſtances, as cabbage, lettuce, green peaſe, and the like, are to be rejected, on account of their diſpoſition to run into the vinous and acetous fermentations, which the ſtomach, having its powers depreſſed by the fever, is not ſtrong enough to counteract. Neither is it able to induce thoſe fermentations which convert the food into chyle. Chyle is therefore not formed from ſuch food, but a conſiderable quantity of vapour is extricated during the time theſe ſubſtances remain in the ſtomach and inteſtines, diſtending them, and producing ſpaſmodic contractions in them.

In the beginning of a regular continued fever no very great nouriſhment is required for the preſent, the ſyſtem being able to ſupport itſelf for a time, without any thing being thrown in to be formed into chyle and blood. For in a man in health, whatever quantity of food is thrown in, a certain part of it only is converted into blood. The remainder is either converted principally into water, and thrown out of the body, or into expreſſed oil, and depoſited in the cellular membrane, or what is by ſome called the adipoſe membrane. Hence we ſee that where food can always be had in plenty, and the appetite is ſuch as provokes a perſon to employ a great deal more food than what is capable of maintaining the proper quantity of blood, if the ſuperfluous quantity of chyle be converted into water, and evacuated, the perſon remains thin. If, on the other hand, a great part of the ſuperfluous quantity of food is converted into expreſſed oil, a great quantity of fat is accumulated in almoſt every part of the body. When more food is uſed than what is neceſſary for keeping up the proper quantity of blood, there is always ſome quantity of expreſſed oil, and perhaps ſome other ſubſtances formed in the body. Theſe are laid up, as it were, in a reſervoir, are abſorbed, brought into the circulation again; are converted into blood, and ſupply in a degree the want of proper nouriſhment.

By what proceſs they are converted into blood is not at all known; but that they are is evident, in as much as a perſon ſtrong and well nouriſhed does not loſe his fluids, and become ſo emaciated in fever, and in many other diſeaſes, as if he had had leſs blood in his blood-veſſels, and leſs fat, &c. when the diſeaſe firſt took place.

It has already been remarked, that when more food is made uſe of than what is ſufficient to keep up the quantity of blood in the ſyſtem, the ſuperfluous quantity is otherwiſe diſpoſed of. So when a great quantity of expreſſed oil is depoſited in the cellular membrane, it does not ſupply the place of food better than if a moderate quantity had been ſo depoſited, the powers of the body not being able to make above a certain quantity of expreſſed oil into blood. Or, in other words, it may be ſaid, that although a man, with a moderate quantity of expreſſed oil, that is, moderately fat, can undoubtedly ſupport himſelf in a fever, better than a man who was emaciated when the diſeaſe took place, yet a man with a very large quantity of expreſſed oil is hurt by the abſorption, it being increaſed in conſequence of the fever. The power of the ſyſtem is oppreſſed by the quantity of expreſſed oil abſorbed, which cannot be converted into blood, and muſt be converted into water, to be thrown out of the body.

When therefore a man is in a proper ſtate of nouriſhment when a fever begins, if there is in his body matter which may in part ſupply the loſs of the blood during its progreſs, it is not proper to diſturb the ſyſtem by exhibiting any kind of food liable to produce this effect in the firſt days of the diſeaſe.

If it could be foreſeen when a fever begins, as it may be in many caſes, that it would be converted into a regular intermittent in a few days, it would not be neceſſary to derange the ſyſtem, by exhibiting any kind of food that might produce any diſorder in it, ſuch derangement preventing perfect intermiſſions from taking place. But if it be known, from the rules that have already been laid down, that the diſeaſe is more likely to be a continued fever, although no nouriſhment is wanted immediately, there will afterwards come a time when a much greater quantity of nouriſhment will be required. The derangement of the organs of digeſtion is not ſo great in the firſt days of the diſeaſe, as it comes to be afterwards; ſo that upon the whole, conſidering what may happen afterwards, that is to ſay, how much nouriſhment will be wanted, it is better not to let the patient ſink, but give him as much food, and ſuch food, from the beginning, as will not produce any diſturbances from its quantity or quality.

Every kind of food which is adheſive to the ſtomach when it gets into it, produces conſiderable diſturbances in the ſyſtem during the time it remains in the ſtomach; ſuch as ſtrong ſolution of gum arabic, jellies formed from the meat of young animals, or from the membraneous parts of animals diſſolved in water; ſuch ſubſtances, therefore, ſhould be avoided. Farinaceous matter, coagulated by heat, and afterwards diſſolved in water, forms a food which gives indeed moderate nouriſhment, but then it is not adheſive to the ſtomach, does not produce any diſturbance in the ſyſtem in conſequence of its ſolidity, nor is it apt to fall into the vinous and acetous fermentation, and is not therefore aceſcent or flatulent. Farinaceous vegetable food, if diſſolved in water, without being firſt coagulated by heat, or otherwiſe, affords a very viſcid ſolution, which adheres to the ſtomach, and produces great diſturbances in the ſyſtem. We ſee that the ancient Greek phyſicians were extremely careful to coagulate farinaceous matter before they exhibited it to their patients, either in a ſolid form, or diſſolved in water, as their *panis biſcoctus*, or bread twice baked, the coagulation not penetrating ſufficiently through the whole of it on its firſt expoſure to heat. On the ſame ground they broke down the farinaceous ſeeds of wheat, and other grains, into ſmall particles, although not quite into flour, expoſed them to heat in an oven until they were browned. So likewiſe barley water is prepared, by boiling in the firſt place the barley in water, till it be coagulated, throwing away that water, and then employing a freſh quantity of water, in which part of the barley is diſſolved. Such a ſolution of farinaceous matter in water forms the ſimpleſt nouriſhment in fevers, and other acute diſeaſes.

Solutions of farinaceous ſeed, thus formed, firſt by taking off the huſks from the ſeed, then boiling the cotyledons or farinaceous parts in water, afterwards throwing away that water, and laſtly adding more water, until part or a whole of the farinaceous matter is diſſolved, forms that kind of nouriſhment which gives the leaſt diſturbance during its digeſtion.

It has been contended by many practitioners, that no other food ſhould ever be employed in a regular continued fever, as they have thought that it is of much more conſequence to avoid all diſturbance, and conſequent irregularity of the fever, than to give nouriſhment in a greater degree. Others, again, have thought it of conſequence to give more nouriſhment.

The next preparation of farinaceous matter is made by forming it into a cake, baking it, and afterwards boiling it in water, until it is not quite diſſolved, and ſo exhibiting it to the patient. Sago ſeems to be the farinaceous pith of ſome palm tree prepared in this manner.

The author, in his *Treatiſe on Digeſtion*, has ſhewn, by an accurate experiment, that the ſame quantity of the ſame food in a ſolid form, gives much greater nouriſhment than when it is diſſolved in water; at the ſame time it is not improbable, that even when it is nearly diſſolved, it is of ſomewhat more difficult digeſtion than when it is entirely diſſolved.

Next to food prepared in the manner which has been already deſcribed, the cotyledons of farinaceous ſeeds, as of barley, for example, boiled in water, until they have become very ſoft, give ſomewhat a greater nouriſhment, and have been thought by many a food of quite as difficult digeſtion as ought ever to be employed in continued fevers. Bread twice baked, which in our language is called ruſks, is nearly of the ſame degree of facility of digeſtion, and of the ſame nouriſhment. Farinaceous ſeeds, broken down into ſmall particles, afterwards expoſed to heat until they are brown, and given either in that ſtate or boiled in water, appear to have been much employed by the ancient Greek phyſicians, although they are not now in uſe.

Fruits are of various qualities with regard to digeſtion and nouriſhment. Some of them contain a very conſiderable quantity of an acid, which is evidently capable of digeſtion, as it corrects the putreſcency of animal food, which no other acid does. This ſhews that it enters into the fermentations of the ſtomach along with the animal food. This is a ſubject, however, which it would be improper to argue here, as fruits, whoſe juices principally conſiſt in this acid, ſuch as lemons, do not afford nouriſhment enough to be depended upon in fevers.

Some fruits contain a mucilaginous ſubſtance, which is exceedingly apt to fall itſelf into fermentation, and produce in the ſugar, which is found in ſome quantity in all fruits, the vinous and acetous fermentations, and induce theſe fermentations in the ſtomach. Theſe are therefore flatulent and aceſcent, and of conſequence cannot be employed with any propriety in this diſeaſe. Cherries, for example, are of this kind. Other fruits contain a great deal of ſugar, and hence afford great nouriſhment, and but little of that mucilage which is ſo apt to fall into fermentations, are eaſy of digeſtion, and may therefore be employed in fever; the principal of theſe which are cultivated are grapes, figs, and dates, which are all of them agreeable to the ſtomach, and may be employed along with the preparations of farinaceous matter that have been above enumerated.

While in the recent form, however, the fruits laſt enumerated contain rather too large a quantity of eſſential oil to be agreeable to the ſtomach during the time of a regular continued fever, although the flavour of this eſſential oil is often very agreeable to a man in health in their recent form. They alſo contain more or leſs of a mucilaginous adheſive matter. By drying or expoſing them to the heat of boiling water, the adheſive matter is coagulated, and loſes its adheſiveneſs; the eſſential oil is in a great meaſure evaporated, and the objections ariſing from theſe of conſequence got rid of. The miſchief, however, ariſing from the flavour, and adheſive mucilage, is not ſo great as to prevent them from being employed when recent, if they be good of their kind, eſpecially grapes, provided they be fully ripe.

Another claſs of fruits contain, beſides native vegetable acid, fermentable mucilage, ſugar, and generally a ſmall proportion of an adheſive mucilage like gum, and a quantity of farinaceous matter; ſuch as apples, pears, apricots, peaches, and nectarines. In the tribe of apples there is a large proportion of farinaceous matter and adheſive mucilage; therefore apples and pears may be employed in regular continued fevers; but not unleſs they have had their mucilaginous ſubſtances coagulated by heat, which alſo deſtroys, in a great meaſure, the fermentable mucilage with which they likewiſe abound. Boiled, baked, or roaſted, they may alſo be employed as food in a regular continued fever.

Peaches, and other fruits of the ſame kind, when they have been improved by cultivation, contain little elſe but farinaceous matter and ſugar, and may therefore be employed without any previous preparation.

The fruits of the cucurbitaceæ, whether ripe or unripe, are very improper to be employed in regular continued fever, or indeed in any diſeaſe where it is neceſſary to employ food of eaſy digeſtion. They contain a mucilage, which falls into fermentations more difficultly than any ſubſtance that we know. They reſiſt ſo ſtrongly the fermentations which take place in the ſtomach, although they be of a looſe and flabby texture, as to have remained in the ſtomach above three days, and to have been thrown up again undiſſolved and almoſt unaltered. Of this kind are cucumbers, melons, &c.

Theſe are the vegetable ſubſtances employed for food, and the properties which render them fit or unfit to be made uſe of in regular continued fever, according to the degree of the diſeaſe. That is, in a very violent regular continued fever, at the beginning, if the patient be in perfect health and ſtrength, and well nouriſhed, nothing but ſolutions of farinaceous matter, coagulated by heat, ſhould be given. If the fever is not ſo violent, although there appear to be no neceſſity for much nouriſhment for the preſent, yet as there will come a time afterwards, when the fever will be more violent, and affect the organs of digeſtion more, it is better to employ farinaceous matter coagulated, and nearly diſſolved again in water, ſuch as ſago; or only ſomewhat ſoftened again by the water, as barley boiled ſoft, &c. together with ſuch fruits as have been above pointed out.

It has been a queſtion, whether any animal food ſhould ever be employed in regular continued fevers. Many practitioners have contended ſtrongly, that no animal food ſhould ever be given. Animal food, of any kind, is certainly much more apt to diſagree with the ſtomach, to produce a great ſenſe of heat throughout the ſyſtem, and to render the pulſe more frequent, than thoſe vegetable ſubſtances which have been enumerated as proper to be employed in regular continued fever. Moreover men may live and be nouriſhed, and their ſtrength perfectly kept up, by vegetable food alone, even when they undergo great labour, or when they uſe violent exerciſe. If thus in health food of eaſy digeſtion is ſufficient to maintain the powers of the body, it is certainly capable of maintaining them in diſeaſe, where from the facility of its digeſtion, a greater proportion of it will be converted into chyle, than of animal food of much more difficult digeſtion.

Whether it be ever proper for mankind to uſe animal food, is a queſtion foreign from the preſent diſſertation. The queſtion at preſent to be agitated is, whether animal food ſhould be employed by a patient afflicted with fever. The author is inclined to think, that it is never neceſſary or proper for the patient to uſe animal food of any kind in a regular continued fever. The habit of uſing animal food in large proportion to the whole in this country, England, has induced an idea, that a patient could not be ſuſtained through a regular continued fever without uſing animal food. This prejudice is ſo ſtrong, that it is impoſſible to prevent the attendants on the ſick from giving them animal food. It muſt therefore be conſidered, what kind will produce the leaſt diſturbance in the ſyſtem.

In the firſt place, no ſolid animal food ſhould ever be exhibited to a patient affected with a regular continued fever. Solid animal food, even ſuch as is of the eaſieſt digeſtion, ſuch as fowls, and white fiſh of a moderate degree of firmneſs, as whitings, has been the cauſe of the greateſt number of relapſes when uſed after a criſis, or by a convaleſcent, that have come within the knowledge of the author. Of conſequence, it muſt do much miſchief during the time of a regular continued fever, by rendering the relaxations more imperfect, and the exacerbations more violent; it ought, therefore, to be by no means uſed, until the patient has got perfectly free from all appearances of the diſeaſe.

If animal food then is to be employed at all, it ſhould be in ſolution in water. All ſolutions of animal food in water are not of the ſame kind. In the firſt place, there are certain ſolutions of animal food in water, which contain mucilaginous matter, which coagulates, that is to ſay, becomes inſoluble in water, conſequently ſolid as ſoon as it gets into the ſtomach. Such ſubſtances are as difficult of digeſtion as ſolid animal food, when they are thrown into the ſtomach, and ought therefore to be rejected; ſuch as whites of eggs, ſerum of blood, &c. All ſuch ſubſtances may be eaſily known, by heating them to the heat of boiling water, in which degree they alſo coagulate.

Milk is a fluid that always coagulates in the ſtomach, but does not coagulate in the heat of boiling water. It has been generally thought, that this fluid ought not to be made uſe of in continued fevers. In one part of the works of Hippocrates, it is ſaid ſimply, that it is bad. In another part, that it ought not to be given, unleſs the fever is very long. Sometimes the author has ſeen it coagulate in the ſtomach ſo firmly, as to render the patient ſick, which ſickneſs brought on vomiting, during which the coagulum was thrown up reſembling a tendon. In ſuch caſes milk is undoubtedly a very improper food.

Milk conſiſts of a ſolution of a mucilaginous ſubſtance in water, expreſſed oil, and ſugar; there is perhaps likewiſe a little of the neutral ſalts of the blood in it. The ſugar contained in it corrects any putreſcency that might take place in the chyle, rather diſpoſing it to be aceſcent; and the expreſſed oil being every where mixed with it, prevents it, when it coagulates, from forming ſo firm a maſs, ſo that although it be always coagulated in the ſtomachs of children, it digeſts eaſier than almoſt any kind of food, at the ſame time that it gives them greater nouriſhment. This would tempt us to employ it in fever, as an animal food of at leaſt eaſy digeſtion; and the author is not certain that, notwithſtanding it has been condemned by Hippocrates, and the few caſes he has ſeen where it has diſagreed with the ſtomach, that it is very fit to be employed if any animal food is given.

Of the ſolutions of animal mucilages in water, which are not coagulable by the juices of the ſtomach, there are none found commonly in animal bodies which give nouriſhment. They are made by diſſolving the ſolid or coagulated fluids of animals in water by heat. Theſe differ from each other, in forming with water a ſolution either more or leſs viſcid or adheſive.

It has already been obſerved, that every thing adheſive is of extremely difficult digeſtion, and at the ſame time produces great diſorder in the ſyſtem during the digeſtion. All ſuch ſolutions of animal mucilage in water, as form with the water an adheſive compound, are therefore improper to be employed in fevers. Such are ſolutions of all parts of young animals, as veal, lamb, &c. and alſo the ſolutions of the membraneous, tendinous, and ligamentous parts of all animals.

If we, therefore, employ any animal food at all in regular continued fevers, it ſhould be ſolutions of the muſcular parts of animals, which have attained their full growth, as of oxen, ſheep, fowls, &c. In making ſolutions of parts of animals in water, which we call broths and ſoups, we extract a quantity of expreſſed oil, which is fluid in the heat of boiling water, generally ſolid in the heat of the atmoſphere. This expreſſed oil contains the flavour of the animal, which depends probably on an eſſential oil diffuſed through the expreſſed oil. When the whole ſolution is ſet to cool, the expreſſed oil riſes to the top, and as it cools becomes ſolid, and therefore may be eaſily ſtrained off, carrying the flavour along with it, which ſhould always be done before it be exhibited to the patient.

At the beginning of a regular continued fever, when it has attacked a patient in full vigour and well nouriſhed, it is certainly improper to employ animal food in the firſt week of the diſeaſe; when it is given, it ought to be in ſmall quantities at a time. Theſe are the attentions to the nouriſhment during the continuance of a regular continued fever.

Thirſt is often a very diſtreſſing ſymptom of fever: the opinions of practitioners have differed very much with regard to the quantity as well as quality of the fluid to be made uſe of for drink.

The ancient Greek phyſicians thought it improper that the patient ſhould drink any thing at all during at leaſt part of the diſeaſe, as they conceived that any kind of drink increaſed the fever, and occaſioned greater thirſt, even water alone. Modern practitioners, with a view of rendering the blood thinner, have forced the patient to drink a much larger quantity of water, or watery fluids, than he would of his own accord.

That the blood is thick, and in conſequence obſtructs the ſmall veſſels in fever, was a doctrine formed by authors, who were not acquainted with the ſubſtances of which the blood conſiſts. They did not know that its moſt eſſential parts are red particles, coagulable lymph, and ſerum; that there is beſides theſe a ſolution of mucilaginous ſubſtance, ſimilar to that which is formed where putrefaction has taken place, that there was a ſolution of natron muriatum, ammonia muriata, and ammonia phoſphorata; beſides other neutral and earthy ſalts; and that beſides all theſe ſubſtances there is alſo water, not in a ſtate of chemical combination with any ſubſtance, but diffuſed through them. There is, therefore, a larger quantity of water already in the blood-veſſels than is neceſſary to diſſolve or combine with any of them.

That it is true that there is water not chemically combined is ſhewn by this, that when the blood is expoſed to ſome of the fine filters in the body, ſuch as the pores of the ſkin or the kidneys, water is filtered off, ſometimes perfectly pure; but filtration is a proceſs which never ſeparates two ſubſtances chemically combined; water then, ſo filtered off, is not in combination with any of the ſubſtances from whence it is filtered.

If more ſuperfluous matter were thrown into the blood than is already in it, it would not render any of the parts of the blood thinner, or capable of paſſing through veſſels it could not paſs through before; the only effect of it would be, that when blood came to a veſſel ſo ſmall as not to let any other part of the blood paſs through, the water would paſs through, and leave the other parts of the blood behind. Throwing, therefore, a larger quantity of water into the blood-veſſels would not thin any part of the blood that was too viſcid, ſo as to make it paſs through veſſels that it could not paſs through before on account of its viſcidity. It is not neceſſary, therefore, to force the patient to drink more water than he chooſes for the purpoſe of thinning the blood, as no ſuch effect ariſes from throwing in a larger quantity.

There are many other arguments, by which it might be ſhewn, that drinking more water than the patient is naturally inclined to do, from his thirſt, in no way alters the chemical properties of the blood; that is, thoſe properties which diſtinguiſh the ſeveral parts of it from one another, or from any other ſubſtance; but what we have already urged appears perfectly ſufficient.

As it is not neceſſary or uſeful to give a quantity of water greater than the patient chooſes to drink, ſo on the other hand, the not giving a ſufficient quantity, according to the thirſt, ſeems to have ariſen, as far as can be judged, from that ſuperſtition, which has induced mankind to refrain from things agreeable, to produce ſome ſalutary effect; juſt as men think they will go to heaven, by not eating animal food for two days in the week.

The author then conceives, that the patient ſhould be allowed to drink as much as he deſires.

Another queſtion has been much agitated, whether the drink ſhould be exhibited hot or cold.

The ancient Greek phyſicians exhibited water in fever, not only cooled to the heat of the atmoſphere, but cooled to the freezing point; and they gave ſuch cold water, to the quantity of a quart or two, to be drunk at once. The purpoſe for which ſuch quantities of very cold water were exhibited, will be taken notice of afterwards. At preſent the ordinary food and drink of the patient are only treated of.

Some modern practitioners conceive, that cold fluids, thrown into the ſtomach, would render the blood thicker, and would make it produce obſtruction. Cold undoubtedly increaſes the viſcidity of all fluids; this is ſhewn by a cold fluid paſſing through a filter much ſlower than the ſame fluid when it is hot. The body is always kept nearly in the ſame degree of heat. Probably one of the uſes of this equal heat is, that there ſhall be no alteration of the viſcidity of the fluids, ſo as to affect the filtrations which are conſtantly taking place, and by which ſome of the moſt important functions are performed.

When cold water is thrown into the ſtomach, the power in the ſtomach itſelf of keeping its own temperature, in common with the other parts of the body, will prevent the heat of the blood in it from being rendered much leſs than the ordinary heat of the animal. The rapidity with which the blood paſſes through the veſſels of the ſtomach, would hardly allow time for it to be affected much by the heat of water in the ſtomach. After a man has put his hand in water even as cold as the freezing point, the author has found blood taken from a vein of the arm not cooled to leſs than ninety degrees. If the blood was rendered ſo thick as to be capable of obſtructing the veſſels, it would be the veſſels of the ſtomach itſelf that would be obſtructed; but no miſchief ariſes to the ſtomach when frozen watery fluids are thrown into it. Although thouſands of the inhabitants of London are every day in the practice of eating ice, we find no miſchief ariſe from throwing it into the ſtomach, either in health or in fever.

When a vein is opened, and blood flows from it into a baſon, the coagulable lymph ſeparates from the water by which it was diſſolved, and becomes ſolid; but the coagulable lymph becomes ſolid equally, whether the blood be kept in the heat of the human body, or be heated only to the heat of thawing water, which is leſs; or to the heat of an hundred and thirty degrees of Fahrenheit's thermometer, which is more than it can ever be expoſed to in the human body.

There is therefore no reaſon to believe, that cold water thrown into the ſtomach, eſpecially in ſuch quantity as the patient chooſes to drink, can make any alteration in the thickneſs of the blood, by its operation in the ſtomach.

The author, therefore, concludes, that as it is of no uſe to reſtrain the patient from drinking as much as he pleaſes, or to compel him to drink more than he chooſes, ſo it is of no uſe to prevent him from drinking it of the degree of heat that he likes beſt.

The next thing to be inquired into is, the quality of the watery fluid that is uſed for drink in continued fevers.

Water is obtained without any artificial proceſs, as it flows out of the bowels of the earth by ſprings; in which caſe it almoſt always contains ſome ſaline ſubſtances, moſt commonly natron muriatum, or magneſia vitriolata, or both; and likewiſe very often a vapour, which was called gas by

Van Helmont, who firſt diſcovered it; and ſince his time fixed air, and by many other names. When the water paſſes in a ſtream from the ſpring, expoſed to the atmoſphere, the gas evaporates, and the ſalts are decompoſed; ſo that in a river, although it may be mixed with earthy matter, which diſturbs its tranſparency, yet there is nothing chemically combined with it.

There is a mode of decompoſition of ſalts, conſiſting of an acid and an alkali, called neutral, an acid and a metal called metallic ſalts, and an acid and an earth called earthy ſalts, which has been taken too little notice of by practitioners in medicine, although it is very often of great importance in the exhibition of medicines.

If a neutral, metallic, or earthy ſalt, be diſſolved in barely as much water as will diſſolve it, and expoſed to the air, no change will take place; but if this ſaturated ſolution be diluted with a conſiderable quantity of ſpring, river, or rain water, on ſtanding expoſed to the air, the ſalts will be decompoſed:

poſed: the neutral ſalts will firſt have their alkali converted into magneſia, and afterwards the acid will be loſt, and the magneſia fall to the bottom. In metallic ſalts, the metal falls to the bottom in a calx, that is combined with pure air, and that calx is ſometimes combined with gas. In earthy ſalts the acid will alſo be loſt, and the earth will fall to the bottom. An eaſy experiment ſhews this. Make a ſaturated ſolution of cuprum vitriolatum in water, and let it ſtand in a wine glaſs expoſed to the air of the atmoſphere; it will remain perfectly clear and tranſparent; but if we put a drop of this ſolution into a wine glaſs holding two ounces, full of water, the liquor will be at firſt perfectly tranſparent; but in leſs than a minute it will begin to grow opaque, and in leſs than an hour will fall to the bottom, in the form of a blue calx. This explains what happens in mineral waters; the neutral, metallic, and earthy ſalts contained in them, are decompoſed when they are but in ſmall proportion to the water, on being expoſed to the air of the atmoſphere. In like manner, if we diſſolve a grain of tartarized antimony in an ounce of ſpring, river, or rain water, with a view of giving a quarter of an ounce, and of conſequence a quarter of a grain of tartarized antimony, at the end of every ſix hours. The firſt quarter of an ounce may contain a quarter of a grain of tartarized antimony; the ſecond quarter of an ounce leſs; the third quarter of an ounce ſtill leſs, and the laſt quarter of an ounce contains almoſt none at all.

To return from this digreſſion; a perſon accuſtomed to any ſtimulus, applied to the organs of the ſenſes, feels an uneaſineſs if that ſtimulus be removed, ſuch as a man feels when the light he has been accuſtomed to is removed; ſo pure water, applied to the palate, is inſipid, and gives that diſagreeable ſenſation which has been called mawkiſhneſs. Thus the inhabitants of London are fonder of water iſſuing out of the earth by ſprings, which contains magneſia vitriolata, and natron muriatum, and gas, than diſtilled water; and from being accuſtomed to the former, feel diſtilled or pure water diſagreeable to the taſte.

It ſeldom happens that a ſolution of any ſaline ſubſtance, which is not diſagreeable to the taſte from the ſalt contained, can do any miſchief to a patient affected with regular continued fever, and therefore whether he drinks pure water alone, or water combined with ſuch ſalts, and ſuch a quantity of gas as are commonly combined with it in ſprings, is of no conſequence.

It has often happened that water has been impregnated with the eſſential oils of ſome of that claſs of plants, which in Linnæus's ſyſtem are called didynamia gymnoſpermia, ſuch as ſage, balm, &c. and exhibited for drink in fevers.

This practice has ariſen from an hypotheſis, that increaſing the hot fit of fever by ſtimulants would tend to produce a criſis. Although this hypotheſis was conſidered by Sydenham, in this country, as not true, and is given up by practitioners of knowledge in medicine, the practice of giving theſe infuſions has, notwithſtanding, continued from mere habit. This practice ſeldom does miſchief, but is of no manner of uſe.

Weak vinous fluids are in a ſtate of fermentation; and as ſubſtances in a ſtate of fermentation are apt to excite any other fermentation that the ſame ſubſtances are capable of, are perhaps uſeful to excite in the ſtomach the fermentations by which the food is converted into chyle, they are therefore ſo far perhaps better than pure water. Sydenham accordingly recommends ſmall beer, a weak vinous fluid, formed from an infuſion of malt, provided it be perfectly in the vinous ſtate, as a drink proper to be employed in continued fever.

Solutions of farinaceous ſubſtances, after they are coagulated, ſuch as barley water, have not only the advantage of making the ſuperfluous water of the blood remain longer in the blood-veſſels, ſo as to carry off more effectually the ſuperfluous ſaline ſubſtances, and putreſcent mucilage of the blood, but likewiſe afford nouriſhment of very eaſy digeſtion, and are therefore very uſeful as drink in all fevers in which ſuch nouriſhment is required. They may be rendered more palatable by mixing a little acid from any vegetable, ſuch as lemons or oranges, and if it ſhould be more agreeable to the patient a little ſugar, which alſo tends to give nouriſhment.

When a man is ſeized with fever, it often happens that before the moment of the fever taking place, he felt himſelf in perfect health. It may happen, therefore, that juſt before the fever came on, he may have eaten a conſiderable quantity of food, which of courſe would not be digeſted, converted into chyle, and paſs into the blood-veſſels; nor would it any how elſe be emptied out of the primæ viæ; and the powers of digeſtion being leſſened, as well as the other powers of the body, the food would remain in the ſtomach undigeſted. When food remains in the ſtomach or inteſtines undigeſted, it either goes through the vinous and acetous fermentations, or putrefies, and in both caſes occaſions great diſturbance in the ſyſttem. It produces ſometimes uneaſineſs about the ſtomach itſelf, and at firſt a ſenſe of coldneſs generally all over the body; afterwards a ſenſe of heat, or heat without any preceding coldneſs; a feel of fullneſs in the abdomen, flatulency, frequency of pulſe, pain in the forehead, ſometimes ſickneſs, and ſometimes cutaneous eruptions, or even inflammation about the head. All theſe derangements ought to be avoided in fever. The readieſt mode of getting clear of theſe miſchiefs is, to employ an emetic to evacuate ſuch ſubſtances out of the ſtomach. If ſuch undigeſted food ſhould have got into the duodenum or jejunum, an emetic will evacuate theſe likewiſe, as is evident from its bringing up a quantity of bile, which never gets into the ſtomach in the healthy ſtate of the body. Suppoſing that no food has been thrown into the ſtomach for many hours before the fever begins, ſo that all that has already been thrown in has digeſted, and the ſtomach and inteſtines have been cleared of it entirely, even in this caſe moſt practitioners have conſidered it as neceſſary to exhibit an emetic. Perhaps it may be, that ſomething like the ſame cruſt that is formed on the tongue, may alſo be formed upon the ſurface of the ſtomach, and be evacuated by the emetic; or whether it be by ſome other effect of the emetic, the patient is relieved by it ſo much, as to have induced all practitioners to recommend it at the beginning of fever, or even five or ſix days after the fever has begun, ſuppoſing an emetic has not before been given.

It may be doubted whether the emetic produces relief in all caſes, by evacuating ſomething noxious out of the body, or whether the action of the emetic may not give relief to the patient in ſome other way. This is a queſtion which will be agitated hereafter, when at the ſame time the quality of the emetic and the mode of exhibiting it will be treated of.

Among the powers of the body which are depreſſed by fever, the periſtaltic motion of the inteſtines is one. The inteſtines, therefore, do not carry down the undigeſted part of the food, nor the bile, pancreatic juice, nor other ſubſtances ſecreted in them. Any of theſe ſubſtances remaining in the bowels produce a ſenſe of fulneſs, weight, and uneaſineſs and reſtleſsneſs in every part of the body, and augment the fever very conſiderably. It becomes neceſſary on this account to employ ſome laxative to keep up the periſtaltic motion of the inteſtines, and produce an evacuation every twenty-four hours. At the beginning of a fever there may be undigeſted food in the inteſtines, while the patient is ſufficiently ſtrong to be able to bear a larger evacuation than afterwards. In this caſe it is not of much conſequence what laxative is employed. But after the fever has gone on for ſome time, eſpecially if the ſtrength of the patient be reduced, the practitioner ſhould never employ laxatives, which are uncertain in their operation, leſt by too large an evacuation taking place, the patient ſhould be very materially hurt.

Purgatives are very far from having one quality in all of them; ſome act, for example, in much leſs time than others. Such purgatives as neutral ſalts, or ſuch ſalts as contain magneſia combined with an acid, increaſe the ſecretions from the inteſtines, and operate in an hour or two after their exhibition, and their effects are ſoon over. Others, as aloes and rhubarb, increaſe only the periſtaltic motion of the inteſtines, and neither produce ſo copious an evacuation, nor are they ſo quick in producing their effects, not operating very often in leſs than ten or twelve hours.

Of theſe two ſpecies of purgatives, it may be proper to employ ſuch as increaſe the ſecretions, and operate quickly for the firſt time, becauſe the inteſtines will thus be quickly evacuated, and the ſubſtances contained in them not ſuffered to remain long enough to increaſe the fever or diſorder it, provided the patient ſhould have a ſufficient degree of ſtrength. If he ſhould be very weak when attacked by the fever, the riſk muſt not be run even at the beginning, when his ſtrength is not at all exhauſted by the fever, of exhibiting even one doſe of ſuch a purgative as neutral ſalts, &c. leſt large evacuations ſhould be produced by it, and the patient ſo reduced as never to have his ſtrength recruited ſo as to be able to be ſupported during the diſeaſe.

If one doſe of ſuch a purgative as increaſes the ſecretions from the inteſtines, and produces quick evacuations, be exhibited at the beginning of the diſeaſe, it is improper to repeat it, becauſe the want of appetite, and even loathing of food in the patient, prevent him from throwing down ſuch ſubſtances as we want to evacuate very quickly, or waſh off afterwards. It is much better to employ ſuch purgatives as increaſe the periſtaltic motion only; for this purpoſe caſſia, manna, and other ſuch laxatives, together with ſenna, rhubarb, and ſulphur, are to be employed. Although they are longer in their operation, and perhaps even give a little more pain to the patient, their effects are much more limited, ſo that they run little riſk of weakening by too copious an evacuation; they alſo clear the inteſtines more certainly of what is wanted to be got rid of.

It may be ſaid, that we might fix on ſome laxative which is preferable, and ought always to be employed, this way being much more ſimple and determinate. It is to be obſerved, however, in the firſt place, that the conſtitutions of different patients are often different from each other, and ſubſtances applied to different men have different effects; ſo that if one laxative happens not to produce ſufficient effect in its ordinary courſe, it may be ſupplied by another which can. Moreover, in one ſituation one laxative may be procured, when another of the ſame kind cannot. But the principal ground on which it is neceſſary to enumerate various laxatives is, the advantage that ariſes of mixing ſeveral of them together. When one laxative is employed alone, and in a ſufficient doſe, it is apt to produce ſickneſs, pain in the bowels, and is uncertain in the degree of its operation. When ſeveral laxatives are mixed together, they are much leſs apt to produce ſickneſs or pain, and are much more certain in their operation.

This obſervation is applicable to a variety of different claſſes of medicine; but it would be much too great a deviation to enter into any diſcuſſion of this ſubject here.

Certain purgatives not only affect the ſtomach and inteſtines ſingly, but alſo produce conſiderable effects on the whole ſyſtem. They render the pulſe frequent, for inſtance, ſuch are jalap, ſcammony, and many others; it would be certainly improper to employ any of theſe to act as laxatives in fever.

When the patient has gone through the firſt week of the fever, his ſtrength begins to fail, in ſo far as that any great evacuation might bring him ſo low, that he could not afterwards be eaſily ſupported through the remainder of the diſeaſe. It is therefore a queſtion, whether it is proper, after the firſt week, to give him a laxative by the mouth.

It happens unfortunately, that medicines do not operate preciſely in the ſame manner and in the ſame degree, every time they are exhibited, although in the ſame doſe, and under circumſtances perfectly ſimilar, as far as can be judged. The ſame purgative, or mixture of purgatives, exhibited to the ſame perſon in health at the diſtance of a week, when ſuch perſon appears to be exactly in the ſame ſtate in all circumſtances, will operate often very differently, hardly ever exactly in the ſame manner. At the firſt exhibition it ſhall purge four or five times, with or without much pain; at the ſecond perhaps twice, and with the reverſe proportion of pain; or it ſhall purge the firſt time only twice, and the ſecond time three or four times. The action, therefore, of ſuch purgatives is very far from being conſtantly the ſame. It is to be remembered, that it is ſtated that the doſes are given at leaſt with the interval of a week; if two equal doſes of the ſame purgative be exhibited to the ſame perſon with a day's interval, the firſt doſe generally purges much more than the ſecond.

A laxative medicine thrown into the ſtomach after the firſt week of the diſeaſe, although given in the ſame doſe which before produced one evacuation in twenty-four hours, may now therefore produce five or ſix, and may by this means diminiſh the powers of the ſyſtem too much, and is therefore to be exhibited with great caution.

If there were no other mode of evacuating feculent matter which has been accumulated, the miſchief ariſing from it is ſuch, that a laxative muſt be employed, although certainly with caution.

There is, however, another mode of applying purgative or laxative remedies, ſo as to affect the inteſtines, encreaſe their periſtaltic motion, and occaſion their contents to be evacuated, and even increaſe the ſecretions from them.

If purgative medicines are injected into the rectum only, or with ſuch force as to throw them up alſo into the colon, they will operate ſo as to occaſion any feculent matter then to be evacuated. This mode of applying purgatives or laxatives, differs only from the former in the degree of their operation, and is ſaid to be by glyſter.

The queſtion to be here agitated is, whether it may be better or ſafer to employ purgatives or laxatives in the latter part of fever, to keep the inteſtinal canal clear of feculent matter in this way, or by the mouth.

As purgatives thrown into the ſtomach, and paſſing from thence into the inteſtinal canal, are immediately applied to the excretory ducts of all the glands of the inteſtines, they of courſe ſtimulate all theſe glands; if they act by ſtimulating the glands; and by thus producing a flow of fluids in every part, waſh the whole canal clean from beginning to end, and are ſo far preferable.

Since ſuch purgatives likewiſe as tend to increaſe the periſtaltic motion of the inteſtines, when thrown into the ſtomach, are applied to the whole internal coat, as they paſs along they increaſe the periſtaltic motion through the whole

whole, and ſo empty the inteſtines completely.

Purgatives, therefore, thrown into the ſtomach, clear the whole inteſtinal canal better than glyſters.

In the beginning of fevers the food that was not digeſted remains in the upper part of the inteſtines, and therefore at the beginning of regular continued fevers, on this ground, it is better to give purgatives by the mouth.

When purgatives are thrown into the rectum and colon, as they perhaps never riſe above the colon, it is a queſtion whether their influence, as acting on the rectum or colon, extends to the ileon, or higher; whether therefore they can clear the upper parts of the inteſtines.

For the preſent purpoſe this need not be argued; for after a fever has continued a week, and is regular, if purgative medicines by the mouth have been given to clear the upper part in that week, little food, and that only of the eaſieſt digeſtion, being employed afterwards, all that is required is to keep the lower parts clear of the recrementitious parts of that food, and of the fluids ſecreted in the inteſtines. Glyſters therefore, after the firſt week of the diſeaſe, ſeem ſufficient to evacuate any noxious matter that may be in the inteſtines.

It is true that it may often happen, and actually does often happen, that during the firſt week of a continued fever, the practitioner who has attended to the patient has not thought of the ſtate of the primæ viæ, but left the patient without one evacuation from the inteſtines for ſeveral days; and that this coſtiveneſs continues, or a purging ariſes from the feculent matter having putrefied, or otherwiſe become ſtimulating. In this caſe purgatives or laxatives muſt be thrown into the ſtomach; but ſuch caſes will be treated of more fully in the diſſertations on irregular fever.

Glyſters have this difference in their action from purgatives, that they are not near ſo apt to produce a number of very looſe evacuations, and ſo weaken the patient. As therefore they are ſufficient to keep the primæ viæ clear after the firſt week, they are preferable for the reaſons above given.

Nearly the ſame ſubſtances uſed for laxatives given by the mouth may be uſed for glyſters.

The vehicle ſhould be ſome mucilaginous watery fluid, as ſolution of farinaceous matter in water. Solution of flower of oats, which we call water gruel, may be uſed. Decoction of mallows, &c. are alſo proper. Such mucilaginous ſubſtances are preferable to pure water, as they prevent the ſtimulus of the purgative from acting ſo immediately on the inteſtine, and ſo making the glyſter be evacuated directly, without bringing the feculent matter along with it.

It would be too great a digreſſion here to enter into the explanation of this ſubject; it is ſufficient to ſay, that the effect is actually found to be ſo. For the ſame reaſon oil has alſo commonly been added to glyſters. Oil has alſo the effect of ſmoothing the inſide of the inteſtines, and allowing hard feculent matters to paſs eaſily over them.

The purgatives to be uſed in glyſters in regular continued fevers are manna, caſſia, &c. ol. ricini, ſenna, &c. which do not ſtimulate the ſyſtem It is alſo much better to mix them together, as in the elect. ſen. comp. for the ſame reaſon as purgatives given by the mouth are better mixed.

In continued fevers, where glyſters are merely uſed to keep the primæ viæ clear, neutral ſalts are not ſo applicable, becauſe they are apt to induce a watery ſecretion from the inteſtine, which is not wanted, but is hurtful.

If after the firſt week of a continued fever the patient ſhould have had no evacuation from the inteſtines for twenty-four hours, a glyſter ſhould be uſed about ſix or ſeven in the evening, that the feculent matters may be evacuated before the time of ſleep. This ſhould be repeated every evening, when there has been no evacuation in the former part of the day.

If there ſhould be two or three looſer evacuations in the courſe of the day, it is alſo uſeful to employ glyſters of mucilaginous fluids; but this will alſo be more properly conſidered among the irregularities which take place in the diſeaſe.

The ſleep in fevers is prevented from being either ſo long or ſo ſound as in health; the patient is of conſequence very much weakened. It has been ſhewn alſo, that ſleep occaſions the ceſſation of all irregularities in the ſyſtem, and therefore that it has a tendency to carry off fever, which is undoubtedly a very conſiderable irregularity. As the ordinary hours of ſleep among mankind are generally the time of the greateſt force of the hot fit in continued fevers, if it could be procured, eſpecially before the time of the criſis or relaxation, which is about four in the morning, by its tendency to remove all diſturbances in the ſyſtem, it would aſſiſt the hot fit in carrying off the diſeaſe. It would therefore be of great conſequence if ſleep could be procured in fever, as the force of the living power would be recruited, criſis would be more apt to be produced, and all diſturbances in the ſyſtem would be got rid of.

After exerciſe, whether it be labour or for amuſement, man is diſpoſed to ſleep. But in a fever the patient can neither labour nor employ exerciſe for his amuſement: he ought undoubtedly to be kept as much at reſt as poſſible both in his body and mind; this method of procuring ſleep, therefore, is quite out of the queſtion in continued fever.

There are ſome things that induce mankind to ſleep when the powers of the ſyſtem are not at all exhauſted. Perfect quietneſs of mind; freedom from pain and uneaſineſs in the body; no paſſion rouſing to exertion, nor bodily pain drawing ſtrongly his attention, and every thing that gives one conſtant and pleaſant ſenſation lull the perſon to ſleep. As an inſtance of the laſt, among ſome nations, gently pinching the ſkin. Gentle motion in the air from the waving of fans, the gentle and uniform noiſe of the flowing of water, or the wind ruſtling through trees, alſo lull a man to ſleep. Such attention to uniform and agreeable objects can hardly be employed with efficacy, to releaſe the mind from that anxiety which renders the patient reſtleſs in fever. Something of this kind the author once ſaw ſucceſsful; the dropping of water, running ſlowly through a filter, into a baſon of fluid placed below.

Opium is a medicine which has been known to produce ſleep and give reſt to thoſe who are fatigued, probably as long as the effect of any medicine has been known. There is ſome medicine ſaid to have been given by Helen to Telemachus to produce this effect. This indeed is the only medicine mentioned by Homer as having any effect when exhibited internally. Opium was certainly well known in the earlieſt ages in Greece. In many caſes, as when a man is exhauſted by labour or weakened by evacuations, it procures a quiet, eaſy, and refreſhing ſleep, if exhibited in the quantity of from half a grain to a grain. In regular continued fever, if exhibited in this quantity it often produces ſleep, but that ſleep is diſturbed; the patient is often diſtracted with various incoherent and frequently diſagreeable dreams; and he often wakes in the morning with a conviction that he has not ſlept at all. Inſtead of a relaxation of the fever taking place in the morning, the headach is greater, he has more thirſt, the appetite is leſs: ſleep, therefore, ſo procured is ſo far different from that reſt which gives time for the powers of the body to be recruited, that they are more exhauſted during it than they would have been if the patient had not ſlept at all. It is true, there are ſome caſes in continued fevers in which ſuch a reſtleſſneſs from the opium is not produced, but a quiet, eaſy, refreſhing ſleep follows its exhibition; theſe are, when there are irregularities in the diſeaſe. Such caſes will be deſcribed in a future diſſertation.

A great many ſubſtances have been mixed with opium to render the ſleep procured by it more quiet and refreſhing; ſuch as ſpices, acid of benzoen, preparations of antimony, antiſpaſmodics, and many others; but no mixture has as yet been found out, which renders ſuch doſes as have been deſcribed capable of producing eaſy and refreſhing ſleep in regular continued fevers.

About five and twenty years ago there aroſe a practice in St. Thomas's Hoſpital of exhibiting opium in a much leſs quantity, to wit, in the quantity of a quarter of a grain for a doſe, and repeating it at the end of every ſix or eight hours. When given in ſuch doſes it produces no immediate effect, but by degrees the patient falls into a ſtupor which gradually increaſes; and although this ſtupor does not end in a complete ſleep, yet it grows in a day or two into that kind of ſtupor that we find, when the delirium from the fever, with apparent fulneſs of the veſſels of the brain, begins to diminiſh. It is true, indeed, that this doſe of opium is obtained by adding a few drops of laudanum to that mixture which is called mithridate, but the author has often employed the opium in his private practice, with ten grains of caſtor, with equal or rather better effect.

Lately many practitioners have exhibited opium three or four times in the twenty-four hours in fevers, having borrowed their practice probably from that which has been purſued in St. Thomas's Hoſpital, the practice of the Hoſpital being open to the inſpection of many pupils. Theſe practitioners have not learned however, that it is the ſmallneſs of the doſe that produces beneficial effects; if the doſe be increaſed ſo far as half a grain, the ſame reſtleſſneſs, the ſame diſturbed ſleep, dreams, &c. as have been noticed, are brought on.

Mithridate, Theriaca Andromachi, &c. contain an immenſe mixture of mucilaginous medicines, ſpices and aſtringents, with a ſmall quantity of opium: this vaſt farrago renders their effects totally unintelligible, and they have therefore been thrown aſide; but many practitioners have given them up with great reluctance, eſpecially old practitioners. It may be ſaid, indeed, that a man who has been in the habit of exhibiting any medicine in a diſeaſe does not like to be diſturbed in that habit, but it is not improbable that they have been led to continue the uſe of theſe, from the good effects ariſing from the exhibition of the ſmall doſes of opium they contain.

Whether ſuch ſmall doſes of opium can with propriety be employed during the firſt week of the fever, has not been determined. The author has not ventured upon employing it, nor does he know that any other perſon has employed it during the firſt week of the diſeaſe.

It is a queſtion whether it might be proper to employ it in the ſecond week, notwithſtanding there is delirium of either kind in a conſiderable degree. This queſtion, however, ſeems to be determined by practice; in either caſe of delirium it would appear that it is proper, that it conſiderably abates the delirium, and eſpecially that it takes off that violent increaſe of delirium of the firſt ſpecies which ariſes in the evening.

Opium is not the only medicine which has been employed with a view of procuring ſleep. There are certain medicines which have been called antiſpaſmodic, which have alſo been employed for the ſame purpoſe by many practitioners. An antiſpaſmodic medicine is a medicine which takes off any contraction ariſing without an apparent cauſe, or continuing after the cauſe of the contraction has been removed: this definition has been by no means adhered to. The medicines which have been more particularly employed to procure ſleep in a regular continued fever, and which are ranked among antiſpaſmodic medicines, are æther and oleum vini, and ſometimes muſk, caſtor, and camphor. The author has very ſeldom ſeen the three laſt procure ſleep in this diſeaſe; but a mixture of alcohol, æther and oleum vini, ſuch as Hoffman ſtrongly recommends under the name of liquor anodynus, and which is probably the ſame as the ſpiritus ætheris vitriolici compoſitus of the London Diſpenſatory, the author has ſeen procure ſleep in many inſtances in regular continued fever. The great drawback from depending on its powers is the uncertainty of its operation. Sometimes, given to the quantity of a dram in the evening, it procures a perfectly ſound and quiet ſleep; or if the like doſe be repeated every ſix hours, ſleep takes place at the ordinary hours of reſt, quiet, ſound, and refreſhing. On the other hand it is to be obſerved, that its effects in producing ſleep are perfectly uncertain, and that the patient is often juſt as reſtleſs after it has been exhibited as if he had taken no medicine at all: it happens even much more frequently that it does not produce any effect. Moreover, it cannot be diſtinguiſhed, by any ſenſible appearance in the patient, in what caſes it will produce an effect, or where it will not produce any effect at all. No bad effects, however, ariſe from employing it, as far as the author has been able to diſcern; there is, therefore, no reaſon for not employing it when the patient is reſtleſs and without ſleep, however capricious it may be in having this effect during the diſeaſe.

Where a regular continued fever is left to purſue its ordinary courſe, the efforts that take place in the fever, and the want of ſufficient nouriſhment and ſleep, frequently weaken the patient towards the end of the diſeaſe to ſuch a degree as to be dangerous, and even in ſome caſes fatal. It often happens likewiſe, that this weakneſs is greatly increaſed by evacuations which have been unneceſſarily made by injudicious practitioners. Weakneſs is alſo induced by evacuations which ariſe from irregularity of the fever, and which conſequently will become the ſubject of a future diſſertation. Weakneſs alſo often takes place for want of food, firſt from the neceſſity of withholding food from the patient in ſufficient quantity; if the patient ſhould take in a larger quantity of food, from its not being digeſted and converted into blood, it muſt either be evacuated without change, or converted into water, and carried off by an effort which would ſtill further diminiſh the force of the ſyſtem. Weakneſs may be alſo produced by not exhibiting that quantity of food that may be digeſted, either from want of ſkill in the practitioner, or the careleſſneſs of the attendant. What the quantity and quality of food are which ought to be given has already been deſcribed. Weakneſs may alſo be induced by practitioners employing medicines that occaſion conſiderable efforts in the ſyſtem, without diminiſhing the diſeaſe, although no improper evacuations have been made.

If no unneceſſary evacuations have been made, if care has been taken to give food in ſuch quantity and quality as the patient can digeſt during the progreſs of the diſeaſe, if the patient has not been exhauſted by the application of improper medicines, it rarely happens that ſuch a degree of weakneſs ariſes in a regular continued fever as to endanger the life of the patient.

If ſuch a degree of weakneſs ſhould, take place, at the end of a regular continued fever, as to endanger the life of the patient, the force of the body may in ſome degree be kept up, by employing medicines which will induce the powers of the ſyſtem to act with all their force, until the fever ſhall ſo far diminiſh as to allow of the ſtomach digeſting food of better nouriſhment, or the powers of the body to be recruited by ſound and refreſhing ſleep. The practice of exciting the body to act with all its powers, until the fever is ſo far gone off, depends upon the following principle.

Let a patient ill of a regular continued fever be ever ſo weak at the time of the criſis, or at the time when the diſeaſe has gradually worn itſelf out; as ſoon as the fever is entirely terminated, provided the patient is allowed to be perfectly at reſt, and if proper nouriſhment is exhibited to him, to wit, ſuch as he can digeſt, the powers of the body begin inſtantly to be on the increaſe; therefore the patient will be gradually reſtored to his health again.

Although there may be conſiderable power in the ſyſtem, yet there may be a want of exertion of that power; ſo that the patient may ſink and die from weakneſs, though there are ſtill in the body powers, which if they had been exerted might have kept the patient alive. By employing medicines to make the body exert theſe powers until the fever is gone off, the patient will be preſerved, and afterwards gradually recover his ſtrength.

If this was not the caſe, all ſtimulants employed in fever would evidently be extremely hurtful, for every extraordinary exertion tends to weaken the ſyſtem, and to exhauſt the powers that it brings into action; and therefore if all the powers in the body were already in action, the increaſing that action would weaken the ſyſtem much more, and render the weakneſs more fatal, inſtead of preventing the patient from being deſtroyed by it. The ſtimulant employed muſt rouſe the dormant powers, in order to have good effects.

The medicines which have been employed for making thoſe powers exert themſelves that otherwiſe would not, are now to be treated of: the ordinary means of recruiting the ſtrength in health by nouriſhment and ſleep having already been attended to, as far as they have an effect in regular continued fevers. With what variation food and ſleep are to be managed in a regular tertian has already been ſufficiently argued, and what attention is to be paid to them in irregular continued remitting and intermitting fevers, will make part of future diſſertations.

The author means here to take notice of the ſeveral different modes that practitioners have employed to excite the action of the living power, in regular continued fever, and give his opinion with regard to them, whatever has been the opinion of other practitioners of whatever eſtimation.

Firſt then, many practitioners have endeavoured to excite the dormant powers of the body, for it is theſe only, as the author has juſt obſerved, that can be excited to advantage, by producing inflammation of the ſkin by the application of various ſtimulants.

If an inflammation is produced in the exterior parts of the body, ſo as to occaſion any alteration in the ſyſtem generally, if it be phlegmonous inflammation, the pulſe becomes hard, full, ſtrong and frequent, and there ariſes an univerſal ſenſe of heat; but the powers of digeſtion are impaired; the patient loſes his appetite, ſo that he cannot ſwallow ſo large a quantity of food; the ordinary quantity of food which he makes uſe of in health, and of the ordinary quality, produces ſickneſs and vomiting, or at leaſt great uneaſineſs and diſturbance throughout the whole body; the faculties of the mind cannot be equally exerted, and eſpecially the imagination and judgment; the muſcular powers are alſo diminiſhed, a man cannot go through the ſame labour, the ſleep is likewiſe prevented. Phlegmonous inflammation therefore prevents the body from being recruited by food and ſleep, and the muſcular powers of the body and the powers of the mind are conſiderably depreſſed. If an inflammation of the ſkin be produced in a man in health, otherwiſe an eryſipelatous inflammation, ſo as to occaſion affection of the general ſyſtem, the pulſe becomes much more frequent, often to one hundred and twenty ſtrokes in a minute, or more; it alſo becomes ſmaller and weaker, the ſtrength is generally depreſſed, and all the powers of the body and mind are in conſequence leſs powerfully exerted. In a perſon otherwiſe in health, therefore, neither the inflammation of the ſubſtance of the exterior parts of the body, nor an inflammation of the ſkin, increaſe the powers of the ſyſtem; on the contrary, they diminiſh the powers of the whole. If it were wiſhed that a man ſhould lift a greater weight, in order to enable him to make ſuch greater exertion, no one would apply a bliſter to his back, or make a deep and painful wound in any part of his body. It is true, that we ſpur a horſe to make him run ſwifter, but the greater exertion in this caſe is from his endeavour to eſcape from pain.

Although then exciting any kind of inflammation by no means increaſes the force of the body otherwiſe in health, yet in health the actions of applications to any part of the body may have a very different effect from what the ſame applications would have, if they were made to the body when diſeaſed. Whether exciting inflammation has or has not the ſame effect in a regular continued fever which it has in health, can only be known by making theſe applications to the body of a perſon affected with regular continued fever. As far as the author's experience goes, when any ſtimulus has been employed ſo as to produce inflammation, when a patient has become weak towards the end of a regular continued fever, the only difference that has occurred has been, that phlegmonous inflammation has not produced hardneſs, fulneſs, and ſtrength of the pulſe; but both phlegmonous inflammation and inflammation of the ſkin have occaſioned greater frequency of the pulſe, have rendered it weaker and ſmaller, and, as in health, have prevented ſleep, and the patient taking the ſame quantity of nouriſhment, and have depreſſed and deranged the whole ſyſtem.

The author therefore concludes, that ſtimulants applied to the ſkin ſo far as to excite inflammation, by producing ſuch inflammation, do not keep up the ſtrength or make any dormant power act, but that on the contrary they weaken the patient; and that therefore exciting inflammation of the ſkin is not to be employed to keep up the ſtrength, when weakneſs takes place towards the end of a regular continued fever.

When ſubſtances are applied to the ſkin ſo as to excite inflammation, ſuch ſubſtances may be abſorbed, carried into the general courſe of the circulation, and be applied to all the irritable parts of the body, and may ſo act upon ſome or all of theſe as to bring the dormant powers of the body into action, and ſo may keep up the ſtrength towards the end of a regular continued fever.

It may be worth while, therefore, to enquire into the effects, which the ſubſtances employed commonly to excite inflammation of the exterior parts produce, when they are abſorbed, get into the general courſe of circulation, and are applied to the various irritable parts.

The ſtimulating matter of cantharides has been very commonly employed to excite inflammation of the ſkin, and to keep up the ſtrength towards the end of continued fevers.

That this matter is often abſorbed there can be no queſtion; it very frequently, in conſequence of being abſorbed, produces inflammation of the neck of the bladder, which we call ſtrangury; when it produces this effect, the pain and conſtant ſenſe of uneaſineſs irritate and exhauſt the patient at all times. Every practitioner who has employed cantharides to excite inflammation, and attended to their effects, muſt have obſerved them often, when abſorbed, produce ſubſultus tendinum, convulſions and hyſteric fits, all of which are certainly very far from keeping up the ſtrength in continued fevers.

In like manner, if we examine any other ſtimulant which has been employed to excite inflammation externally, in order to keep up the ſtrength towards the end of a continued fever, we ſhall find that when they are abſorbed they produce effects upon the irritable parts of the body, which are not at all conducive to ſupport the ſtrength towards the end of continued fevers.

The author, therefore, is obliged to reject the excitement of inflammation of the exterior parts of the body, as a means of ſupporting the ſtrength towards the end of continued fever. He does not ſay, however, that it may not be proper to excite external inflammation for other purpoſes in regular continued fevers; but this will be a matter of future conſideration.

The next means of exciting the action of the dormant powers of the body, ſo as to make them act in ſuch manner as to ſupport the ſtrength at the end of a continued fever, when the patient is weak, is the application of ſubſtances which act upon the ſtomach itſelf, and by that means to excite the other parts of the ſyſtem to exert themſelves powerfully. The firſt kind of theſe to be enumerated is that claſs of plants, called by Linnæus Tetradynamia, together with the ſeveral ſpecies of Allium, and likewiſe Ammonia.

Theſe ſtimulants, when thrown into the ſtomach, act upon it immediately, long before there is time for them to get into the blood-veſſels; their effects go off alſo in an hour or two, and while they produce any effect, it is principally that of making the pulſe more frequent, without increaſing its ſtrength or fulneſs. Such ſtimulants have therefore been properly rejected from the remedies fit to be employed, to make the dormant ſtrength of the ſyſtem be exerted towards the end of continued fevers.

The gums, as they were formerly called, are the reſinous ſubſtances which exude from vegetables, forming either a pure reſin, or a mixture of mucilaginous and reſinous matter. Neither theſe, nor preparations of mercury, ſeem to act upon the ſyſtem generally, when they are immediately thrown into the ſtomach, but require ſome days before they produce any effect, being probably abſorbed, and applied to the ſeveral irritable parts in the ſyſtem. Of theſe, mercury is much too apt to produce evacuations to be truſted, leſt ſuch evacuations ſhould weaken the patient much more, and even to that degree as to deſtroy him; and the reſinous ſubſtances pointed out have not been ſo much made uſe of, as that we can determine the propriety of their exhibition. The author indeed has ſeen them employed, but if he remembers right, without any great effect.

The ſpices, ſuch as cinnamon, nutmegs, cloves, pepper and cardamoms, have been very often and very much employed to keep up the ſtrength in continued fever. They are not nearly ſo much in uſe at preſent, as they were about fifty years ago. When they have any ſenſible effect, they render the pulſe much more frequent, ſmaller and weaker; hence they are certainly improper. It is true, indeed, that by adding a quantity of acid to them the frequency of the pulſe is reduced, and is in ſome way in a certain degree prevented; they are, however, in general very improper remedies for this purpoſe, except when there is a great deal of flatulency in the primæ viæ, which depreſſes the ſtrength of the patient; he is therefore relieved when this flatulency is carried off, which effect theſe ſpices are powerful in producing.

Wine ſeems to be the only remedy that is of uſe to excite the dormant ſtrength of the ſyſtem, when weakneſs takes place towards the end of continued fevers. It tends to increaſe the force of the ſyſtem, without increaſing the frequency of the action of the heart, and on this ground it may be more ſafely employed than any other ſtimulant. It has alſo a narcotic power.

Wine ſhould be employed in moderate quantity; when exhibited in large quantity it produces intoxication, the effects of which every man who has drunk it in ſuch quantity very eaſily perceives. The ſtomach, after the intoxication is gone off, is diſordered, ſpaſmodic contractions take place in it, and it is not capable of digeſting food, which laſt effect would render the patient weaker from want of receiving ſufficient nouriſhment; it ſhould be uſed, therefore, ſparingly, and not in the leaſt to intoxicate.

It ought only to be employed, when the weakneſs has juſt become conſiderable, in moderate quantity; for if we exhibit it in greater quantity than is ſufficient to make ſuch part of the dormant ſtrength of the ſyſtem, as is required, to be exerted, it will exhauſt that dormant ſtrength, and not leave a ſufficient quantity to ſupport the patient during the remaining part of the diſeaſe.

When wine is firſt employed by perſons not accuſtomed to uſe it, where it becomes neceſſary to employ it from weakneſs, four ounces is a ſufficient quantity of wine of the ſtrength of Port wine. The ſtrength of wines can hardly be tranſmitted to poſterity by any permanent mark, for the ſtrength does not depend on the alcohol they contain, but likewiſe on the quantity of a vapour, which was called by Van Helmont gas ſilveſtre, probably different from that vapour which he called gas ſimply, and which has ſince been called fixed air and carbonic acid, although the author thinks theſe improper names; that, however, is foreign to the purpoſe of this diſſertation.

The author has alſo to obſerve, that in patients who have been accuſtomed to drink wine even in large quantities, three half pints are quite ſufficient to be exhibited in twenty-four hours.

If wine is made uſe of it ſhould be well fermented; it is very rare that weak wines are well fermented, it is better then that ſtrong wines ſhould be uſed; ſweet wines are perhaps preferable from the nouriſhment contained in them, but they are ſeldom well fermented, except they be very old: if not well fermented, they are aceſſent and flatulent.

It has been a queſtion whether it is better to employ the wine by itſelf, or diluted with the farinaceous or mucilaginous vegetable ſubſtances we employ for nouriſhment to the patient. It appears to the author, that they ſhould be diluted with farinaceous or mucilaginous ſubſtances mixed with ſugar, as theſe take off the immediate ſtimulus with which wine, when ſtrong and pure, is apt to act upon the ſtomach. On the ſame ground the author would perhaps condemn all diſtilled ſpirits, excepting in ſome ſudden caſes of extreme weakneſs, ſuch as happens from too copious an evacuation from any excretory organ in the body.

The author has now ſhown the means of treating a regular continued fever, ſuppoſing it is left to purſue its ordinary courſe.

The next thing to be enquired into is, whether means have been found out to ſhorten the fever by producing a criſis, or otherwiſe, ſo that the patient ſhall be reſtored to health.

This enquiry will lead the author to conſider whether bleeding, either from any veſſel in the body indiſcriminately, or from ſome particular veſſel in a particular part of the body, has the power of carrying off the fever.

Whether purging, or making any other evacuation to any degree, has a power of carrying off a regular continued fever.

Whether exciting inflammation in the ſkin, or in any other part, has any power of carrying off a regular continued fever.

Whether Peruvian bark, or any other remedy acting on the ſame principle, has any power of carrying off a regular continued fever.

Whether ſtimulants, ſuch as ſpices, have any power of carrying off a regular continued fever.

Whether antiſpaſmodic remedies have any power of carrying off a regular continued fever.

Whether there be any medicine which carries off a regular continued fever, that has no apparent action on the body when in health, or affected with other diſeaſes.

Whether preparations of antimony, or ipecacuanha, or thoſe other medicines which have been enumerated in the diſſertation on a regular tertian, as bringing on a criſis ſimilar to that which takes place in fever itſelf, or render it more perfect, have any power of carrying off regular continued fevers.

If ſymptoms of putrefaction of the fluids ſhould ariſe, whether any remedy, and what remedies may be employed to reſtore them to their healthy ſtate.

If hæmorhage ſhould ariſe in conſequence of putrefaction, whether any remedy, and what remedies may be employed to ſtop ſuch hæmorhage.

Laſtly, if any of theſe remedies have a power of carrying off or diminiſhing a regular continued fever, in what manner they are to be employed for this purpoſe, and what circumſtances may make it improper to exhibit them.

These enquiries will form the ſecond part of this diſſertation, which is in great forwardneſs.

END OF THE FIRST PART.

ORLANDO FURIOSO,
CANT. 35.

XII.

DICO, che come arriva in ſu la ſponda
Del fiume quel prodigo Vecchio, ſcuote
Il lembo pieno; e nella torbida onda
Tutte laſcia cader l'impreſſe note.
Un numer ſenza fin ſe ne profonda,
Ch' un minimo uſo aver non ſe ne puote,
E di cento migliaja, che l' arena
Sul fondo involve, un ſe ne ſerva appena.

XIII.

Lungo, e d' intorno quel fiume volando
Givano corvi, ed avidi avoltori,
Mulacchie, e varj augelli, che gridando
Facean diſcordi ſtrepiti, e romori;
Ed alla preda correan tutti quando
Sparger vedean gli ampliſſimi teſori;
E chi nel becco, e chi nell' ugna torta
Ne prende, ma lontan poco li porta.

XIV.

Come vogliono alzar per l' aria i voli,
Non han poi forza, che 'l peſo ſoſtegna,
Sì che convien che Lete pure involi
De' ricchi nomi la memoria degna.
Fra tanti augelli ſon duo cigni ſoli
Bianchi, Signor, come è la voſtra inſegna,
Che vengon lieti riportando in bocca
Sicuramente il nome, che lor tocca.

XV.

Coſì contra i penſieri empj, e maligni
Del Vecchio, che donar li vorria al fiume,
Alcun ne ſalvan gli augelli benigni;
Tutto l' avanzo obblivion conſume.
Or ſe ne van notando i ſacri Cigni,
Ed or per l' aria battendo le piume,
Fin che preſſo alla ripa del fiume empio
Trovano un colle, e ſopra il colle un Tempio.

XVI.

All' Immortalitade il luogo è ſacro,
Ove una bella Ninfa giù del colle
Viene alla ripa del Leteo lavacro,
E di bocca dei Cigni i nomi tolle;
E quegli affigge intorno al ſimulacro,
Che in mezzo il Tempio una colonna eſtolle:
Quivi li ſacra, e ne fa tal governo,
Che vi ſi pon veder tutti in eterno.

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